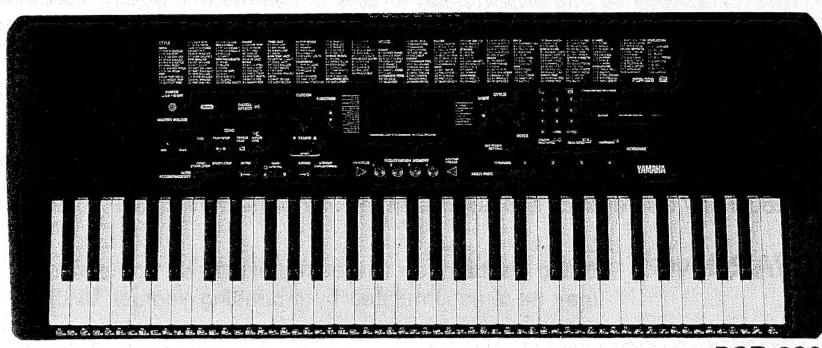


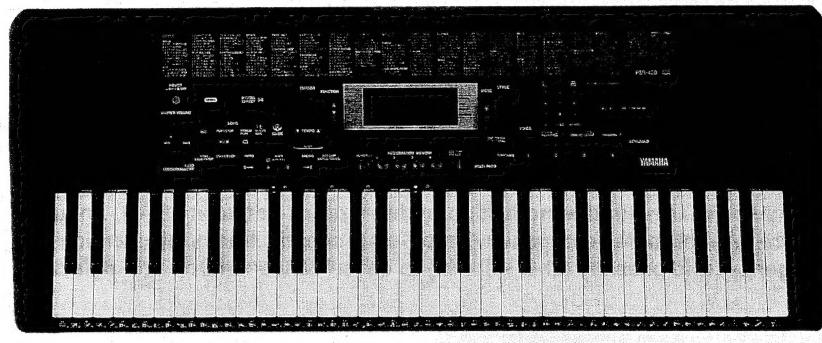
**PORTATONE**

# **PSR-320/PSR-420**

## **SERVICE MANUAL**



**PSR-320**



**PSR-420**

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## IMPORTANT NOTICE

This manual has been provided for the use of authorized Yamaha Retailers and their service personnel. It has been assumed that basic service procedures inherent to the industry, and more specifically Yamaha Products, are already known and understood by the users, and have therefore not been restated.

**WARNING:** Failure to follow appropriate service and safety procedures when servicing this product may result in personal injury, destruction of expensive components and failure of the product to perform as specified. For these reasons, we advise all Yamaha product owners that all service required should be performed by an authorized Yamaha Retailer or the appointed service representative.

**IMPORTANT:** The presentation or sale of this manual to any individual or firm does not constitute authorization, certification, recognition of any applicable technical capabilities, or establish a principal-agent relationship of any form.

The data provided is believed to be accurate and applicable to the unit(s) indicated on the cover. The research, engineering, and service departments of Yamaha are continually striving to improve Yamaha products. Modifications are, therefore, inevitable and changes in specification are subject to change without notice or obligation to retrofit. Should any discrepancy appear to exist, please contact the distributor's Service Division.

**WARNING:** Static discharges can destroy expensive components. Discharge any static electricity your body may have accumulated by grounding yourself to the ground buss in the unit (heavy gauge black wires connect to this buss).

**IMPORTANT:** Turn the unit OFF during disassembly and parts replacement. Recheck all work before you apply power to the unit.

## WARNING: CHEMICAL CONTENT NOTICE!

The solder used in the production of this product contains LEAD. In addition, other electrical/electronic and/or plastic (where applicable) components may also contain traces of chemicals found by the California Health and Welfare Agency (and possibly other entities) to cause cancer and/or birth defects or other reproductive harm.

DO NOT PLACE SOLDER, ELECTRICAL/ELECTRONIC OR PLASTIC COMPONENTS IN YOUR MOUTH FOR ANY REASON WHAT SO EVER!

Avoid prolonged, unprotected contact between solder and your skin! When soldering, do not inhale solder fumes or expose eyes to solder/flux vapor!

If you come in contact with solder or components located inside the enclosure of this product, wash your hands before handling food.

## SPECIFICATIONS

**Keyboards:**  
61 standard-size keys (C1-C6) with touch response.

**Display:**  
Large multi-function LCD display

**Setup:**  
Power: ON/OFF  
Master Volume: MIN-MAX

**Control & Ten Keys:**  
CURSOR ▲▼◀▶, FUNCTION ▲▼, MODE ▼, [0]–[9],  
[+YES], [–NO]

### Cartridge Slot

### Keyboard Guide Lamps (PSR-420 only)

**Demo:**  
Voice Demo: 8 Songs  
Style Demo: 8 Songs

**Mode:**  
NORMAL, SPLIT, SINGLE, FINGERED

**Voice:**  
AWM128 voices +8 Keyboard Percussion Kits  
Polyphony: 28  
Voice Set  
Split Voice: Volume, Octave, Pan, Split Point  
Dual Voice: Volume, Octave, Pan  
Touch Response: Touch Sensitivity  
Harmony: 5 types  
Others: Keyboard Volume, Octave, Pan

**Auto Accompaniment:**  
100 styles  
Accomp Track: RHYTHM, BASS, CHORD, PAD, PHRASE  
ACCOMP LARGE/SMALL  
Accomp Track Settings: ON/OFF, VOICE, VOLUME  
Accompaniment Control: SYNC-START/STOP, START/  
STOP, INTRO, MAIN A/B (AUTO FILL), ENDING

Tempo: 32–280  
Beat Indicator  
Fingering (FINGERED Mode): Normal, Full  
Accompaniment Volume  
Split Point (Accomp Mode)

### One Touch Setting

### Overall Controls:

Transpose  
Metronome  
Lamp (PSR-420 only)

**Digital Effect:**  
4 types (Ambience/Ensemble/Ambience+Ensemble/Sus-  
tain)

**Registration Memory:**  
8 Regist Bank: 1–4  
ACCOMP FREEZE

### Multi Pads:

14 Multi Pad Kits (PSR-420)  
11 Multi Pad Kits (PSR-320)  
4 Pads+Terminate

### SONG:

Song: 3 songs  
Recording Tracks: ACCOMP, MELODY 1, 2  
Edit: Volume, Voice (MELODY TRACK), Song Clear  
Minus One: 3 Modes  
Minus One Right-hand Channel, Minus One Left-hand  
Channel  
Repeat  
Guide (PSR-420 only)

### MIDI:

Remote Channel, Keyboard Out, Song Out, Accompaniment Out, External Clock, Local Control, Initial Data Send, Bulk Data Send

### Auxiliary Jacks:

DC IN 10-12V, PHONES, SUSTAIN, MIDI IN/OUT

### Amplifiers:

6.0 W + 6.0 W (when using PA-5B AC power adaptor)  
4.5 W + 4.5 W (when using batteries)  
Phones output:  $100\Omega \pm 5\%$  Impedance

### Speakers:

12cm (4-3/4") x 2

### Power Consumption:

26 W (when using PA-5B AC power adaptor)

### Batteries:

Six SUM-1, "D" size, R-20 or equivalent batteries

### Rated Voltage:

DC 10-12V

### Dimensions (W x D x H):

933 x 372 x 127mm (36-3/4" x 14-5/8" x 5")

### Weight:

6.0 kg (13.2 lbs.) excluding batteries

### Supplied Accessories:

- Music Cartridge
- Music Stand
- Owner's Manual

### Optional Accessories:

- Headphones HPE-3, HPE-150
- AC Power Adaptor PA-5, PA-5B, PA-5C
- Foot switch FC4, FC5
- Music Cartridge

### Output Level

-12.5 dBm ± 2dB

When pressing C3, D3, E3, F3, G3, A3 and B3 keys  
selecting VOICE 19.  
30Ω load, Touch response: off, Analog volume: max,  
Digital volume: default value

### • Voice & Polyphony List

The PSR-320/420 can play up to 28 individual notes at the same time (i.e. it has a maximum "polyphony" of 28). This number includes all voices used: dual, split, auto accompaniment, song, and multi pads. If the maximum polyphony of the PSR-320/420 is exceeded, the excess notes will be truncated (they will not sound).

Another feature affecting polyphony is the fact that some PSR-320/420 voices actually use two voices at once, as shown in the voice list below. The effective maximum polyphony of the PSR-320/420 is correspondingly reduced when these voices are used.

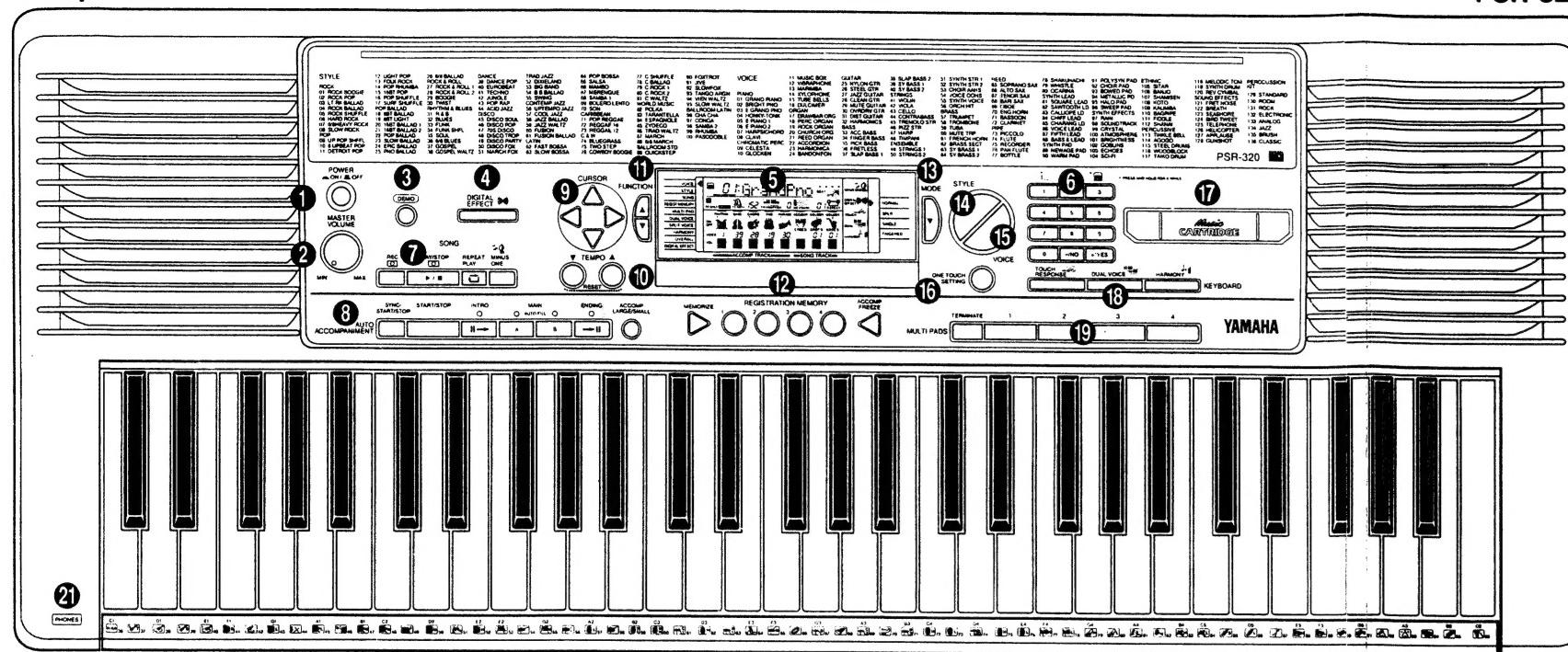
### NOTES

- The voice list includes the MIDI program numbers that control each voice when the PSR-320/420 is played from an external MIDI device.
- The following voices use only one voice in the indicated ranges: 46 (Pizzicato Strings): all notes below C#2 and above F5. 110 (Bagpipe): all notes above A#2.

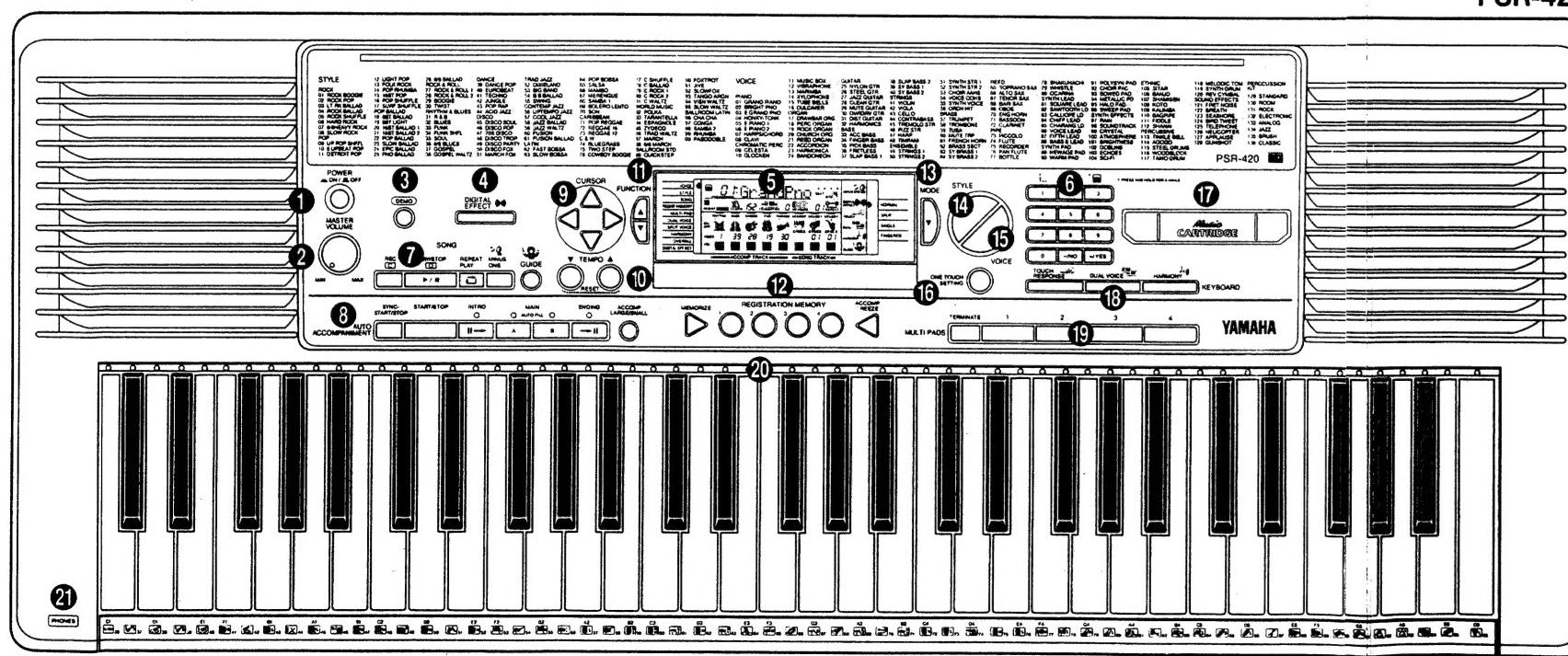
Voice Number	MIDI Program Number	Voice Name	Number of Voices Used	Voice Number	MIDI Program Number	Voice Name	Number of Voices Used	Voice Number	MIDI Program Number	Voice Name	Number of Voices Used								
<b>Piano</b>																			
01	0	Acoustic Grand Piano	1	45	44	Tremolo Strings	2	89	88	Pad 1 (new age)	2								
02	1	Bright Acoustic Piano	1	46	45	Pizzicato Strings	2	90	89	Pad 2 (warm)	2								
03	2	Electric Grand Piano	2	47	46	Orchestral Harp	1	91	90	Pad 3 (polysynth)	2								
04	3	Honky-tonk Piano	2	48	47	Timpani	1	92	91	Pad 4 (choir)	2								
05	4	Electric Piano 1	2	<b>Ensemble</b>															
06	5	Electric Piano 2	2	49	48	Strings Ensemble 1	1	93	92	Pad 5 (bowed)	2								
07	6	Harpsichord	1	50	49	Strings Ensemble 2	1	94	93	Pad 6 (metallic)	2								
08	7	Clavi	1	51	50	Synth Strings 1	2	95	94	Pad 7 (halo)	2								
<b>Chromatic Percussion</b>																			
09	8	Celesta	1	52	51	Synth Strings 2	2	96	95	Pad 8 (sweep)	2								
10	9	Glockenspiel	1	53	52	Choir Ahhs	2	<b>Synth Pad</b>											
11	10	Music Box	2	54	53	Voice Oohs	1	89	88	Pad 1 (new age)	2								
12	11	Vibraphone	1	55	54	Synth Voice	1	90	89	Pad 2 (warm)	2								
13	12	Marimba	1	56	55	Orchestra Hit	1	91	90	Pad 3 (polysynth)	2								
14	13	Xylophone	1	<b>Synth Effects</b>															
15	14	Tubular Bells	1	97	96	FX 1 (rain)	2	98	97	FX 2 (soundtrack)	2								
16	15	Dulcimer	2	99	98	FX 3 (crystal)	2	100	99	FX 4 (atmosphere)	2								
<b>Organ</b>																			
17	16	Drawbar Organ	2	101	100	FX 5 (brightness)	2	102	101	FX 6 (goblins)	2								
18	17	Percussive Organ	2	103	102	FX 7 (echoes)	2	104	103	FX 8 (sci-fi)	2								
19	18	Rock Organ	2	<b>Ethnic</b>															
20	19	Church Organ	2	105	104	Sitar	1	106	105	Banjo	1								
21	20	Reed Organ	1	107	106	Shamisen	1	108	107	Koto	1								
22	21	Accordion	2	109	108	Kalimba	1	110	109	Bagpipe	2								
23	22	Harmonica	1	111	110	Fiddle	1	112	111	Shanai	1								
24	23	Tango Accordion	2	<b>Percussive</b>															
25	24	Acoustic Guitar (nylon)	1	113	112	Tinkle Bell	2	114	113	Agogo	1								
26	25	Acoustic Guitar (steel)	1	115	114	Steel Drums	2	116	115	Woodblock	1								
27	26	Electric Guitar (jazz)	1	117	116	Taiko Drum	1	118	117	Melodic Tom	1								
28	27	Electric Guitar (clean)	2	119	118	Synth Drum	1	120	119	Reverse Cymbal	1								
29	28	Electric Guitar (muted)	1	<b>Sound Effects</b>															
30	29	Overdriven Guitar	1	121	120	Guitar Fret Noise	1	122	121	Breath Noise	1								
31	30	Distortion Guitar	1	123	122	Seashore	2	124	123	Bird Tweet	2								
32	31	Guitar Harmonics	1	125	124	Telephone Ring	1	126	125	Helicopter	2								
<b>Bass</b>																			
33	32	Acoustic Bass	1	127	126	Applause	2	128	127	Gunshot	1								
34	33	Electric Bass (finger)	1	<b>Synth Lead</b>															
35	34	Electric Bass (pick)	1	81	80	Lead 1 (square)	2	82	81	Lead 2 (sawtooth)	2								
36	35	Fretless Bass	1	83	82	Lead 3 (calliope)	2	84	83	Lead 4 (chiff)	2								
37	36	Slap Bass 1	1	85	84	Lead 5 (charang)	2	86	85	Lead 6 (voice)	2								

## ■ PANEL LAYOUT

### • Top Panel

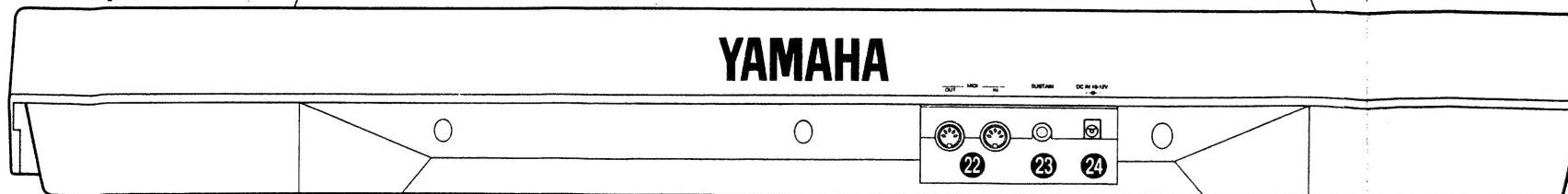


PSR-320



PSR-420

### • Rear panel



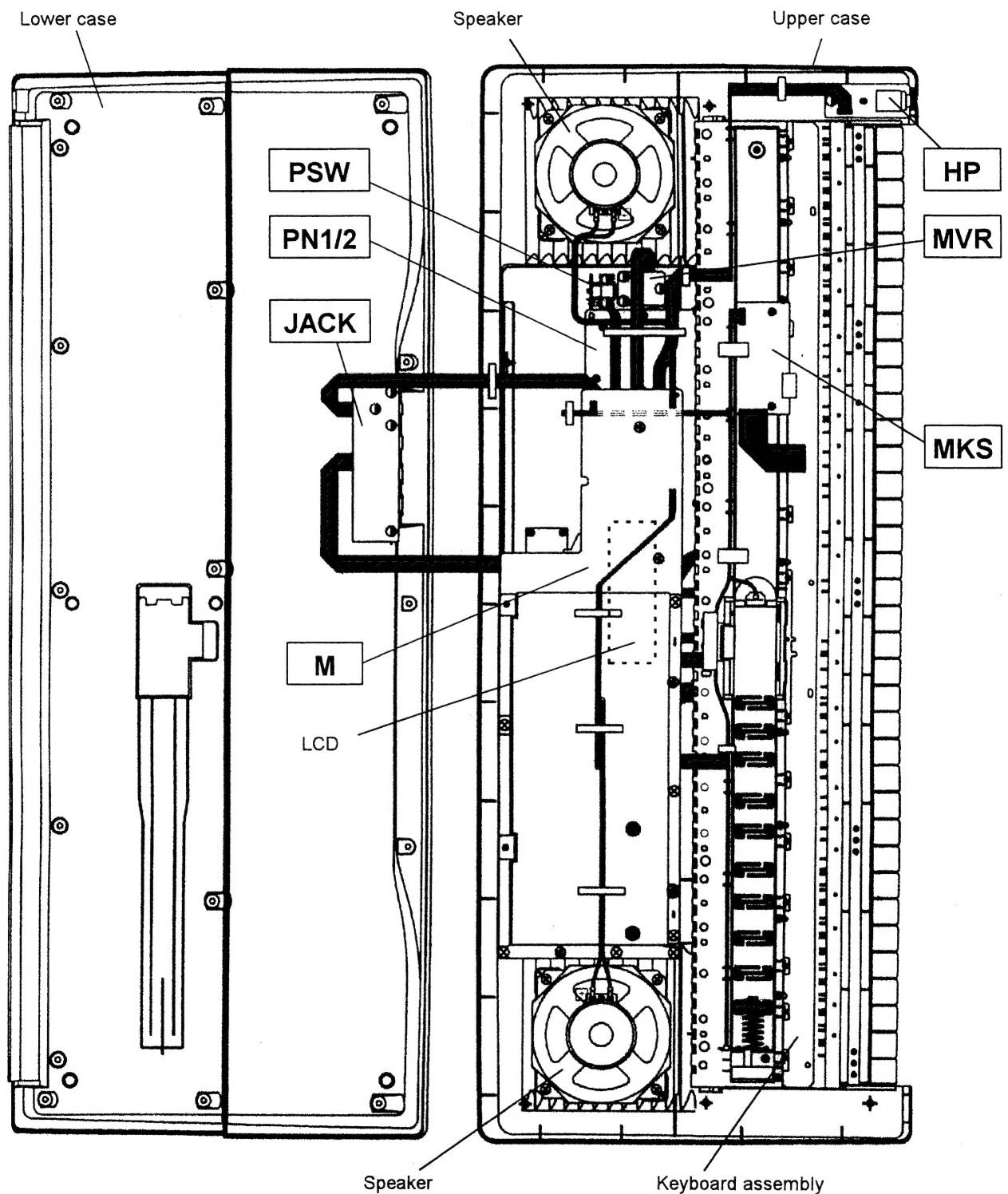
### • Top Panel

- ① POWER Switch
- ② MASTER VOLUME Control
- ③ DEMO Button
- ④ DIGITAL EFFECT Button
- ⑤ LCD Panel
- ⑥ Number [0]~[9] and [+/YES], [-/NO] Buttons
- ⑦ SONG Section
  - REC Button
  - PLAY/STOP Button
  - REPEAT PLAY Button
  - MINUS ONE Button
  - GUIDE Button (PSR-420 only)
- ⑧ AUTO ACCOMPANIMENT Section
  - SYNC-START/STOP Button
  - START/STOP Button
  - INTRO Button
  - MAIN A Button
  - MAIN B Button
  - ENDING Button
  - ACCOMP LARGE/SMALL Button
- ⑨ CURSOR ▲, ▼, ▲, ▼ Buttons
- ⑩ TEMPO ▲, ▼ Buttons
- ⑪ FUNCTION ▲, ▼ Buttons
- ⑫ REGISTRATION MEMORY Section
  - MEMORIZE Button
  - 1~4 Buttons
  - ACCOMP FREEZE Button
- ⑬ MODE ▼ Button
- ⑭ STYLE Button
- ⑮ VOICE Button
- ⑯ ONE TOUCH SETTING Button
- ⑰ Music CARTRIDGE Slot
- ⑱ KEYBOARD Section
  - TOUCH RESPONSE Button
  - DUAL VOICE Button
  - HARMONY Button
- ⑲ MULTI PADS Section
  - MULTI PADS 1~4
  - TERMINATE Button
- ⑳ Keyboard Guide Lamps (PSR-420 only)
- ㉑ PHONES Jack

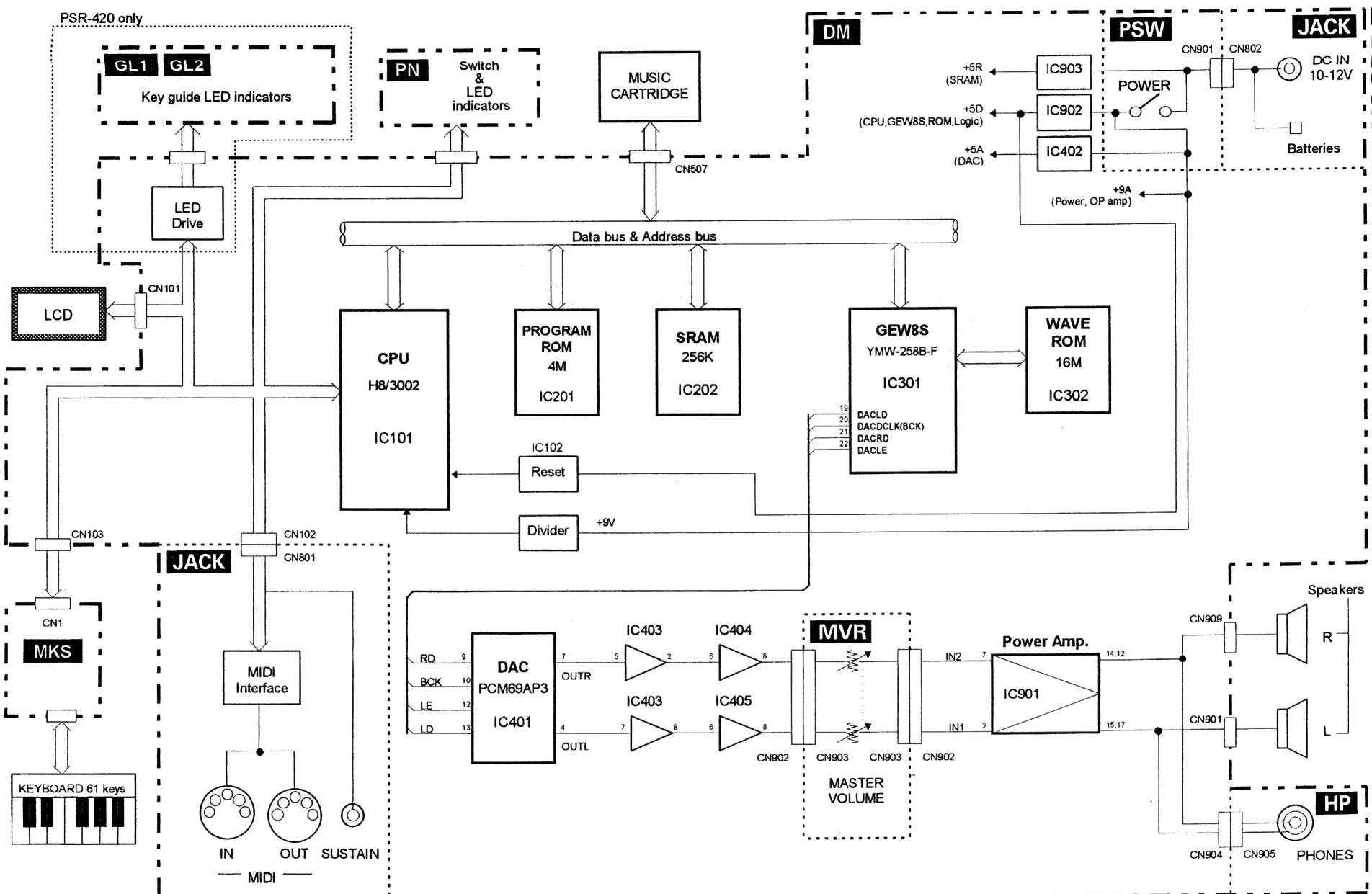
### • Rear Panel

- ㉒ MIDI OUT and IN Connectors
- ㉓ SUSTAIN Jack
- ㉔ DC IN 10-12V Jack

## ■ CIRCUIT BOARD LAYOUT



※ The PN2/2 circuit board is used for retaining the LCD.

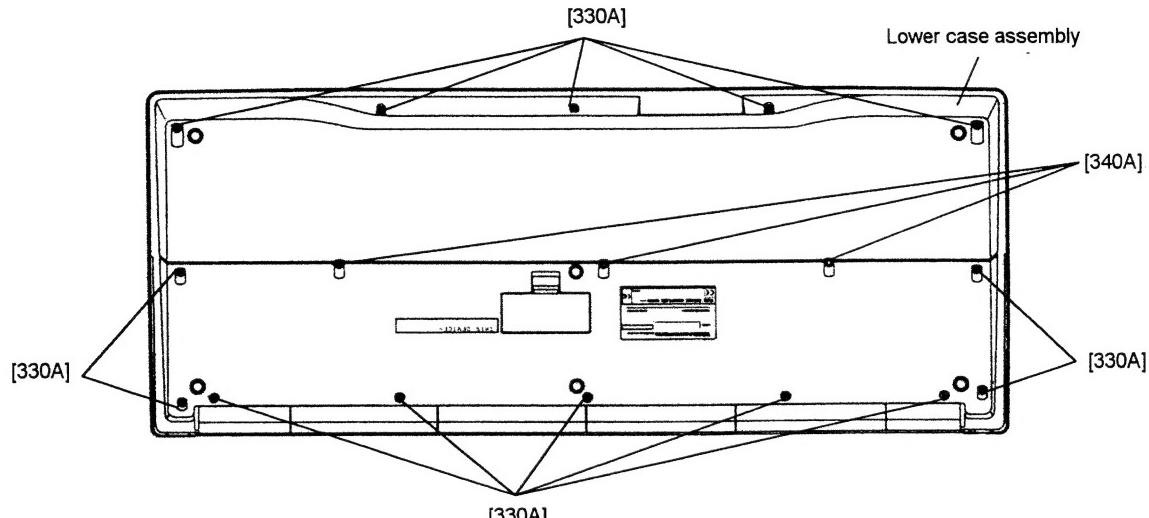
**BLOCK DIAGRAM**

## ■ DISASSEMBLY PROCEDURE

### 1 Lower Case Assembly

1-1 Remove the battery cover assembly.

1-2 Remove the fourteen (14) screws marked as [330A] and three (3) screws marked as [340A], then the lower case assembly can be removed. (Fig. 1)



(Fig. 1)

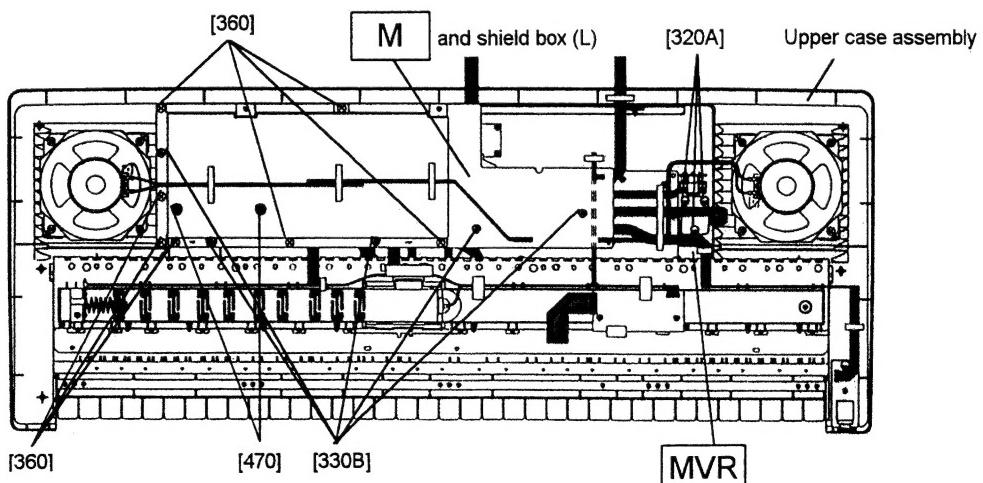
[330A]: Bind Head Tapping Screw-P 3.0X12 MFZN2Y (EP600300)  
 [340A]: Bind Head Tapping Screw-P 3.0X25 MFZN2Y (VK228100)

### 2 M Circuit Board

- 2-1 Remove the lower case assembly. (See procedure 1.)  
 2-2 Remove the five (5) screws marked as [330B] and seven (7) screws marked as [360] and two (2) screws marked as [470], then remove the shield box (L), then the M circuit board can be removed. (Fig. 2)

### 3 MVR Circuit Board

- 3-1 Remove the MASTER VOLUME knob.  
 3-2 Remove the lower case assembly. (See procedure 1.)  
 3-3 Remove the three (3) screws marked as [320A], then the MVR circuit board can be removed. (Fig. 2)



(Fig. 2)

[320A]: Bind Head Tapping Screw-P 3.0X8 MFZN2Y (EP600280)  
 [330B]: Bind Head Tapping Screw-P 3.0X12 MFZN2Y (EP600300)  
 [360]: Bind Head Tapping Screw-B 2.6X6 MFZN2Y (VC069600)  
 [470]: Bind Head Tapping Screw-P 3.0X16 MFZN2Y (EP600310)

**4 PSW Circuit Board**

- 4-1 Remove the POWER switch knob.  
 4-2 Remove the lower case assembly. (See procedure 1.)  
 4-3 Remove the two (2) screws marked as [320B], then the PSW circuit board can be removed. (Fig. 3)

**5 HP Circuit Board**

- 5-1 Remove the lower case assembly. (See procedure 1.)  
 5-2 Remove the screw marked as [320C], then the HP circuit board can be removed. (Fig. 3)

**6 JACK Circuit Board**

- 6-1 Remove the lower case assembly. (See procedure 1.)  
 6-2 Remove the four (4) screws marked as [320D], then the JACK circuit board can be removed. (Fig. 3)

**7 MKS Circuit Board**

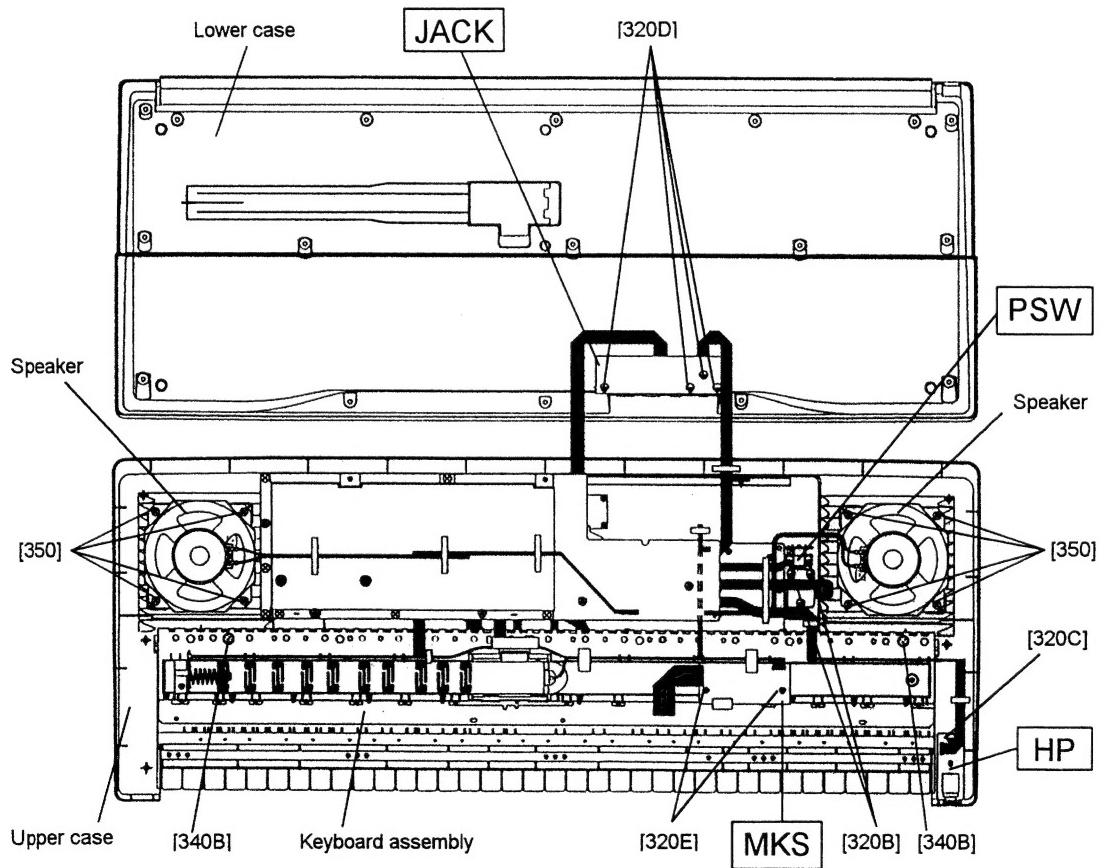
- 7-1 Remove the lower case assembly. (See procedure 1.)  
 7-2 Remove the two (2) screws marked as [320E], then the MKS circuit board can be removed. (Fig. 3)

**8 Keyboard Assembly**

- 8-1 Remove the lower case assembly. (See procedure 1.)  
 8-2 Remove the MKS circuit board. (See procedure 7.)  
 8-3 Remove the two (2) screws marked as [340B], then the keyboard assembly can be removed. (Fig. 3)

**9 Speakers**

- 9-1 Remove the lower case assembly. (See procedure 1.)  
 9-2 Remove the eight (8) screws marked as [350], then the left and right speakers can be removed. (Fig. 3)



(Fig. 3)

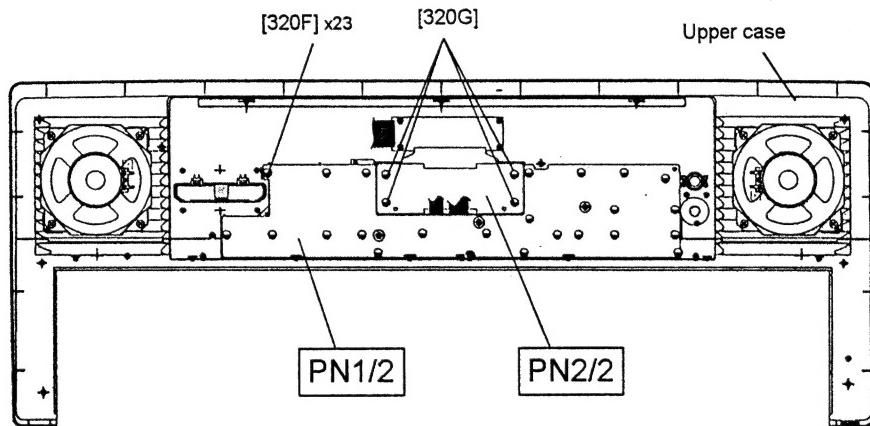
- [320B]: Bind Head Tapping Screw-P 3.0X8 MFZN2Y (EP600280)  
 [320C]: Bind Head Tapping Screw-P 3.0X8 MFZN2Y (EP600280)  
 [320D]: Bind Head Tapping Screw-P 3.0X8 MFZN2Y (EP600280)  
 [320E]: Bind Head Tapping Screw-P 3.0X8 MFZN2Y (EP600280)  
 [340B]: Bind Head Tapping Screw-P 3.0X25 MFZN2Y (VK228100)  
 [350]: Bind Head Tapping Screw-P 4.0X8 MFZN2BL (VB931600)

**10 PN1/2 Circuit Board**

- 10-1 Remove the lower case assembly. (See procedure 1.)
- 10-2 Remove the M circuit board. (See procedure 2.)
- 10-3 Remove the shield box (U) located under the M circuit board.
- 10-4 Remove the keyboard assembly. (See procedure 8.)
- 10-5 Remove the twenty-three (23) screws marked as [320F], then the PN1/2 circuit board can be removed. (Fig. 4)

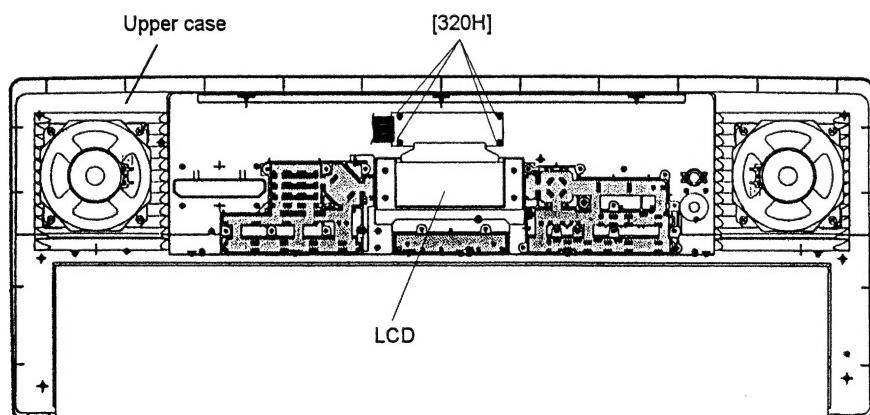
**11 LCD**

- 11-1 Remove the lower case assembly. (See procedure 1.)
- 11-2 Remove the M circuit board. (See procedure 2.)
- 11-3 Remove the shield box (U) located under the M circuit board.
- 11-4 Remove the four (4) screws marked as [320G] to remove the PN2/2 circuit board retaining the LCD. (Fig. 4)
- 11-5 Remove the four (4) screws marked as [320H], then the LCD can be removed. (Fig. 5)



(Fig. 4)

[320F]: Bind Head Tapping Screw-P 3.0X8 MFZN2Y (EP600280)  
 [320G]: Bind Head Tapping Screw-P 3.0X8 MFZN2Y (EP600280)



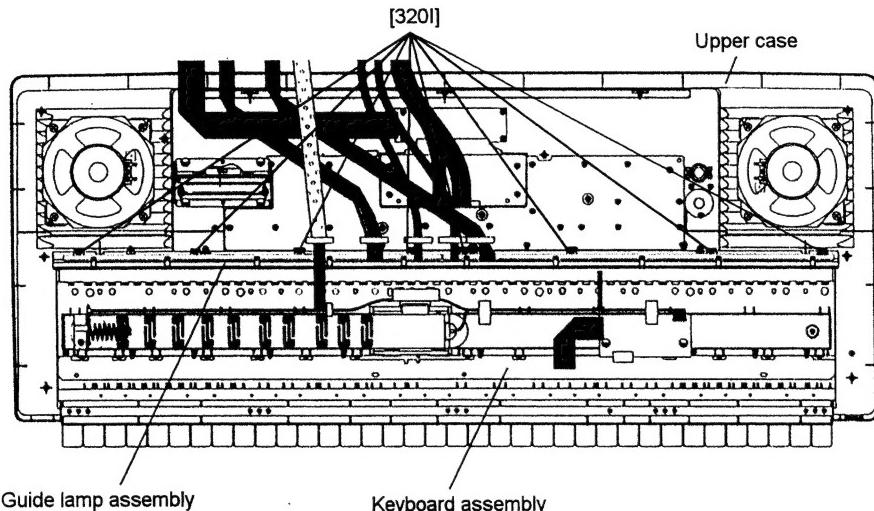
(Fig. 5)

[320G]: Bind Head Tapping Screw-P 3.0X8 MFZN2Y (EP600280)

## 12 GL1 and GL2 Circuit Boards (PSR-420 only)

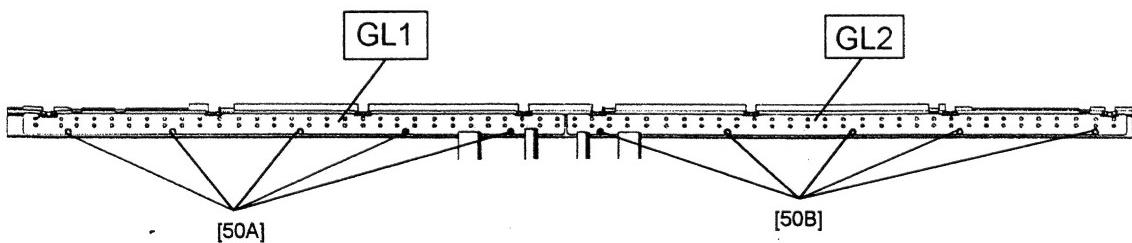
- 12-1 Remove the lower case assembly. (See procedure 1.)
- 12-2 Remove the keyboard assembly. (See procedure 8.)
- 12-3 Remove the eight (8) screws marked as [320I], then the guide lamp assembly can be removed. (Fig. 6)

- 12-4 Remove the five (5) screws marked as [50A], then the GL1 circuit board can be removed. (Fig. 7)
  - 12-5 Remove the five (5) screws marked as [50B], then the GL2 circuit board can be removed. (Fig. 7)
- ※ When you reinstall the guide lamp assembly into the unit, you should tighten the screws marked as [320I] from the center one.



(Fig. 6)

[320I]: Bind Head Tapping Screw-P 3.0X8 MFZN2Y (EP600280)



(Fig. 7)

[50A]: Bind Head Tapping Screw-P 2.6X8 MFZN2Y (EP620100)  
[50B]: Bind Head Tapping Screw-P 2.6X8 MFZN2Y (EP620100)

## ■ LSI PIN DESCRIPTION

### • HD6413002FP16 (XQ375A00) CPU <H8/3002>

PIN NO.	NAME	I/O	FUNCTION	PIN NO.	NAME	I/O	FUNCTION
1	A21	O	Address bus	51	A12	O	
2	A20	O		52	A13	O	
3	VCC		Power supply	53	A14	O	
4	PB0	I/O		54	A15	O	
5	PB1	/O		55	A16	O	
6	PB2	/O		56	A17	O	
7	PB3	/O	Port B	57	A18	O	
8	PB4	/O		58	A19	O	
9	PB5	/O		59	VSS		Ground
10	PB6	/O		60	/WAIT	I	Bus cycle wait
11	PB7	/O		61	P61	I/O	Port 6
12	/RES0	I	Reset	62	P62	I/O	
13	VSS		Ground	63	φ		Not connected
14	TXD0	O	Transmit data (MIDI OUT)	64	/STBY	I	Stand-by mode signal
15	P91	I/O	Port 9	65	/RES	I	Reset
16	RXD0	I	Receive data (MIDI IN)	66	NMI	I	Non-maskable interrupt
17	RXD1	I	Receive data (Keyboard)	67	VSS		Ground
18	P94	I/O		68	EXTAL	I	Clock
19	SCK1	O	Sync. signal	69	XTAL	O	
20	P40	I/O		70	VCC		Power supply
21	P41	I/O		71	/AS	O	Address strobe
22	P42	I/O	Port 4	72	/RD	O	Read strobe
23	P43	I/O		73	/HWR	O	Write strobe (High)
24	VSS		(Ground)	74	/LWR	O	Write strobe (Low)
25	P44	I/O		75	MD0	I	
26	P45	I/O		76	MD1	I	
27	P46	I/O		77	MD2	I	
28	P47	I/O		78	AVCC		Analog power supply
29	D08	I/O		79	VREF	I	Reference voltage
30	D09	I/O		80	AN0	I	Analog data input (Power)
31	D10	I/O		81	AN1	I	Analog data input (SUSTAIN)
32	D11	I/O	Data bus	82	P72	I/O	
33	D12	I/O		83	P73	I/O	Port 7
34	D13	I/O		84	P74	I/O	
35	D14	I/O		85	P75	I/O	
36	D15	I/O		86	P76	I/O	
37	VCC		Power supply	87	P77	I/O	
38	A00	O		88	AVSS		Analog ground
39	A01	O		89	P80	I/O	Port 8
40	A02	O		90	/CS3	I	
41	A03	O		91	/CS2	I	
42	A04	O		92	/CS1	I	Chip select
43	A05	O		93	/CS0	I	
44	A06	O	Address bus	94	VSS		Ground
45	A07	O		95	PA0	I/O	
46	VSS			96	PA1	I/O	Port A
47	A08	O		97	PA2	I/O	
48	A09	O		98	PA3	I/O	
49	A10	O		99	A23	O	Address bus
50	A11	O		100	A22	O	

### • PCM69AP-3 (XM051A00) DAC (Digital to Analog Converter)

PIN NO.	NAME	I/O	FUNCTION	PIN NO.	NAME	I/O	FUNCTION
1	Vcc		Analog power supply	9	DGND		Digital Ground
2	COML		V-common, channel L	10	DATAR	I	Data input, channel R
3	OUTL	O	Current output, channel L	11	BCK	I	Bit clock
4	SRV		Servo filter	12	SCLK	I	System clock
5	REF		Reference filter	13	WDCK	I	Word clock
6	OUTR	O	Current output, channel R	14	DATAL	I	Data input, channel L
7	COMR		V-common, channel R	15	TP1		Test pin
8	AGND		Analog ground	16	VDD		Digital power supply

## • YMW258B-F (XQ200A00) GEW8S (AWM Tone Generator)

PIN NO.	NAME	I/O	FUNCTION	PIN NO.	NAME	I/O	FUNCTION
1	NC			41	VSS		Ground
2	VSS			42	NC		
3	D0	I/O	Ground	43	VSS		Ground
4	D7	I/O	CPU data bus	44	AB0	O	Voice memory address bus
5	A0	I		45	DB7	I/O	Voice memory data bus
6	A1	I		46	AB1	O	
7	A2	I		47	AB2	O	
8	A3	I	CPU address bus	48	AB10	O	
9	/CS	I		49	AB3	O	
10	/RD	I	Chip select	50	AB4	O	
11	/WR	I	Read control	51	AB11	O	
12	XIN		Write control	52	AB5	O	
13	XOUT		Clock	53	AB9	O	Voice memory address bus
14	/IC	I		54	AB6	O	
15	TST0		Initial clear	55	AB8	O	
16	TST1		Test pin	56	AB7	O	
17	VSS		Ground	57	AB13	O	
18	/DITHER		Not used	58	AB12	O	
19	DACLD	O	Data output, channel L	59	AB14	O	
20	DACDCLK	O	Bit clock output to DAC	60	AB15	O	
21	DACRD	O	Data output, channel R	61	AB17	O	
22	DACLE	O	Word clock output to DAC	62	VSS		
23	NC			63	VSS		Ground
24	DACMC	O	System clock output to DAC	64	VSS		
25	CH27			65	VSS		
26	DSPSYW			66	AB16	O	
27	DSPSEND			67	AB18	O	
28	DSPRET			68	AB19	O	Voice memory address bus
29	/DSPIC			69	AB20	O	
30	DSPCDS			70	AB21	O	
31	DSPCLK			71	MRD	O	Memory read control
32	VDD			72	VDD		Power supply
33	DB3	I/O	Power supply	73	MWR	O	Memory write control
34	DB2	I/O		74	D3	I/O	
35	DB4	I/O		75	D4	I/O	
36	DB1	I/O	Voice memory data bus	76	D2	I/O	CPU data bus
37	DB5	I/O		77	D5	I/O	
38	DB0	I/O		78	D1	I/O	
39	DB6	I/O		79	D6	I/O	
40	NC			80	VSS		Ground

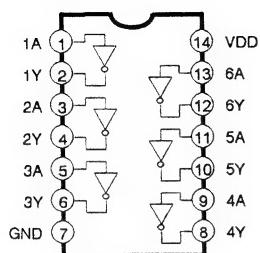
## • HD63B05V0D73P (XJ450A00) CPU

PIN NO.	NAME	I/O	FUNCTION	PIN NO.	NAME	I/O	FUNCTION
1	/RES	I	Reset	21	C7	I/O	
2	/INT	I	Interrupt request	22	C6	I/O	
3	NUM	I	Non-maskable interrupt	23	C5	I/O	
4	A7	I/O		24	C4	I/O	Port C
5	A6	I/O		25	C3	I/O	
6	A5	I/O		26	C2	I/O	
7	A4	I/O	Port A	27	C1	I/O	
8	A3	I/O		28	C0	I/O	
9	A2	I/O		29	D0	I/O	
10	A1	I/O		30	D1	I/O	Port D
11	A0	I/O		31	D2	I/O	
12	B0	I/O		32	D3/TX	O	(Serial data output)
13	B1	I/O		33	D4/RX	I	(Serial data input)
14	B2	I/O		34	D5/CK	O	(Clock for serial operation)
15	B3	I/O	Port B	35	D6//INT2	I	(Interrupt request 2)
16	B4	I/O		36	/STBY	I	(Standby mode signal)
17	B5	I/O		37	TIMER	I	Timer
18	B6	I/O		38	XTAL	O	Clock
19	B7	I/O	Ground	39	EXTAL	I	Power supply
20	VSS			40	VCC		

## ■ IC BLOCK DIAGRAM

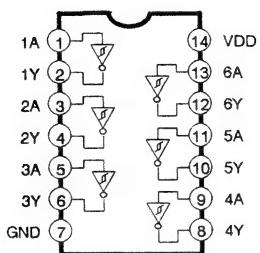
● TC74HC04AP(IR000400)

Hex Inverter



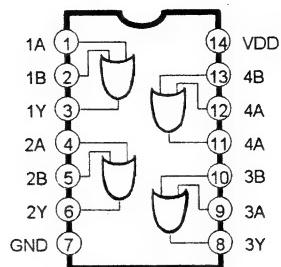
● TC74HC14AP(IR001400)

Hex Inverter



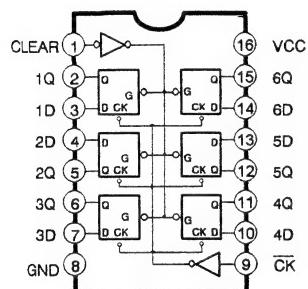
● TC74AC32P(XG658A00)

Quad 2 Input OR



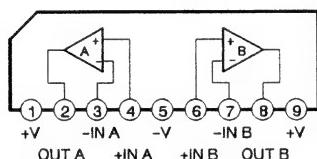
● TC74HC174AP(IR017400)

Hex D-type Flip-Flop



● μ PC4570HA(XB247A00)

Dual Operational Amplifier



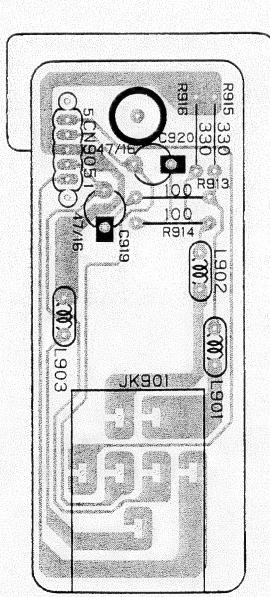
## CIRCUIT BOARDS

Notes)  
PSR-320

- Circuit Board: M (NX007170) J (XQ410C0)  
M (NX007120) U,C,E (XQ41030)  
JACK (NX007180) J (XQ410C0)  
JACK (NX007130) U,C,E (XQ41030)  
HP (NX007190) J (XQ410C0)  
HP (NX007140) U,C,E (XQ41030)  
MVR (NX007200) J (XQ410C0)  
MVR (NX007150) U,C,E (XQ41030)  
PSW (NX007210) J (XQ410C0)  
PSW (NX007160) U,C,E (XQ41030)
- PSR-420  
Circuit Board: M (NX007290) J (XQ410B0)  
M (NX007240) U,C,E (XQ41020)  
JACK (NX007300) J (XQ410B0)  
JACK (NX007250) U,C,E (XQ41020)  
HP (NX007310) J (XQ410B0)  
HP (NX007260) U,C,E (XQ41020)  
MVR (NX007320) J (XQ410B0)  
MVR (NX007270) U,C,E (XQ41020)  
PSW (NX007330) J (XQ410B0)  
PSW (NX007280) U,C,E (XQ41020)
- PSR-320 & PSR-420**
1. IC
    - IC 101: HD6413002FP16 (XQ375A00)  
CPU <H8/3002>
    - IC 102: IC-PST993C-T (XQ693A00) RESET
    - IC 103: TC74HC14AP (IR001400) S-INVERTER
    - IC 201: UPC27C80010 (XR007A00) :ROM 8M  
(PROGRAM): PSR-320
    - IC 201: UPC27C80010 (XR008A00) :ROM 8M  
(PROGRAM): PSR-420
    - IC 202: W24257-70LL (XQ696A00) SRAM 256K
    - IC 203: TC74AC32P (XG658A00) OR
    - IC 301: YM伟258B-F (XQ200A00) GEW8S
    - IC 302: MX23C1610PC-12 (XQ697A00) MASKED ROM 16M
    - IC 401: PCM69AP-3 (XM051A00) DAC
    - IC 402: AN8005-(FTA)+5V (XP515A00)  
REGULATOR +5V
    - IC 403-405: UPC4570HA (XB247A00) OP AMP
    - IC 501-503: TC74HC174AP (IR017400) D-FF
    - IC 504: TC74HC04AP (IR000400) INVERTER
    - IC 901: LA4705 (XM593A00) POWER AMP 15W
    - IC 902: PQ05RA1 (XL450A00) REGULATOR +5V
    - IC 903: S-81250PG-T (XM993A00) REGULATOR +5V
  2. Transistor
    - TR 501,502,  
801,802: 2SC1815 Y,GR (IC1815M0)
    - TR 503-505: 2SA(3CG)881Q (VQ175600) or DTB113ZS
    - TR 506: 2SA(3CG)881Q (VQ175600) or DTB113ZS:  
PSR-420 only  
*When digital transistor, DTB113ZS is used as TR 503-TR505, jumper wire is installed to R567, R568, R569, R570, R571, R572, R573 and R574.*
  3. Transistor Array
    - TA 501,502: ULN2803A (VI707900): PSR-420 only
  4. Diode
    - D 101,401,  
402,801: 1SS133,1SS176 (VB941200)
    - D 802,901: 20E1-FC4 (VL723600)
  5. Photo Coupler
    - PC 801: PC-900V (VG181900)
  6. Mylar Capacitor
    - C 421,422: 0.0560 50V J (UA654560)
    - C 425,426: 0.0220 50V J (UA654220)
    - C 915-918: 0.0470 50V J (UA654470)
  7. Ceramic Capacitor
    - C 411-414: B 220P 50V K (FG612220)
    - C 423,424: B 180P 50V K (FG612180)
    - C 801,803: F 0.0100 50V Z (FG644100)
    - C 903,904: B 1200P 50V K (FG613120)
    - C 905,906: B 470P 50V K (FG612470)
    - C 909,910: SL 47P 50V J (FG611470)
  8. Ceramic Capacitor Array
    - CA 101,501,  
502,504: 470P 50V M (VH285600)
    - CA 102,503: 470P X12 (VT487100)
  9. Electrolytic Cap.
    - C 102,105,112,  
302,402,404,  
926: 100.00 10.0V (UI528100)
    - C 403,907,908: 1.00 50.0V (UJ866100)
    - C 405,406,409,  
410: 10.00 16.0V (UI537100)
    - C 407,408: 4.70 50.0V (UI566470)
    - C 416,912,929: 100.00 10.0V (UJ828100)
    - C 419,420: BP 10.00 16.0V (UN83710)
    - C 501: 1000 6.3V (UJ819100)
    - C 901,902: 10.00 16.0V (UJ837100)
    - C 911: 33.00 16.0V (UJ837330)
    - C 913,925,928: 100.00 25.0V (UJ848100)
    - C 919,920: 47.00 16.0V (UJ837470)
    - C 923: 4700 25.0V (UJ749470)
    - C 930: 470.00 16.0V (UJ838470)
  10. Semiconductive Cera. Cap.
    - C 101,103,104,  
106-108,110,  
111,113,201-  
203,301,303,  
401,415,427,  
428,502-504,  
802,914,921,922,  
924,927: 0.1000 25V Z (VC694800)
    - C 505-507: 0.1000 25V Z (VC694800): PSR-420 only
  11. Carbon Resistor
    - R 101,103,521,  
908: 100.0K 1/4 J (HF758100)
    - R 102,413-418,  
522,567,569,  
571,802,807,  
907: 10.0K 1/4 J (HF757100)  
*When digital transistor, DTB113ZS is used as TR 503-TR505, jumper wire is installed to R567, R568, R571 and R573.*
    - R 104: 390.0K 1/4 J (HF858390)
    - R 105: 220.0K 1/4 J (HF758220)
    - R 108,109,563,  
565,801,803: 47.0K 1/4 J (HF757470)
    - R 111: 820.0 1/4 J (HF755820)
    - R 112,805,809,  
810,917,918: 220.0 1/4 J (HF755220)
    - R 113,519,520: 22.0 1/4 J (HF754220)
    - R 401,402,405,  
406: 560.0 1/4 J (HF755560)
    - R 403,404,915,  
916: 330.0 1/4 J (HF755330)
    - R 407,408: 2.7K 1/4 J (HF756270)
    - R 409-412: 6.8K 1/4 J (HF756680)
    - R 419,420: 33.0K 1/4 J (HF757330)
    - R 421,422,901,  
902: 27.0K 1/4 J (HF757270)
    - R 423,424: 150.0 1/4 J (HF755150)
    - R 501-516: 68.0 1/4 J (HF854680): PSR-420 only
    - R 517,518: 68.0 1/4 J (HF854680)
    - R 523-559: 82.0 1/4 J (HF854820)
    - R 562,564,905,  
906: 2.2K 1/4 J (HF756220)
    - R 566,568,570: 1.0K 1/4 J (HF756100)  
*When digital transistor, DTB113ZS is used as TR 503-TR505, jumper wire is installed to R566, R568, R570 and R572.*
    - R 572: 1.0K 1/4 J (HF756100): PSR-420 only
    - R 573: 10.0K 1/4 J (HF757100): PSR-420 only
    - R 804:  
270.0 1/4 J (HF755270)
    - R 806,808: 22.0K 1/4 J (HF757220)
    - R 903,904: 15.0K 1/4 J (HF757150)
    - R 909-912: 2.2 1/4 J (HF753220)
    - R 913,914: 56.0 1/4 J (HF854560)
  12. Resistor Array
    - RA 501: RGLE8X103J (VF771900)

13. Rotary Variable Resistor  
VR 901: A10Kx2 (VQ320200) MASTER VOLUME
14. Line Filter  
L 904: SU10VD-10020 (VH227500)
15. Coil  
L 101,102,801-  
809,901-903: FL5R200QN 20u (VB971100)
16. Ceramic Resonator  
CR 101: 16.0M EF0EC1605T4 (VT487200) or  
16.0M CST16.00M (VT630600)  
CR 301: 9.40M CST9.40MTW (VJ338000)
19. Push Switch  
SW 901: SDDL81 (VQ670600) POWER switch
20. Phone Jack  
JK 801: YKB21-5012 BL (VB312600) SUSTAIN  
JK 901: YKB21-5006 (LB101870) PHONES
21. DIN Connector  
JK 802,803: 5P YKF51-5050 (VJ107200) MIDI IN,OUT
22. DC IN Connector  
JK 804: HEC2305 (VC664500) DC IN 10-12V
23. Cable Holder  
CN 102,801: 51048-7P TE (VI878500)  
CN 802,901: 51048-6P TE (VI878400)  
CN 902-905: 51048-5P TE (VI878300)  
CN 906,907: 51048-4P TE (VI878200)
24. Wire Trap  
CN 101: 52151-14P SE (VK02730)  
CN 103,802: 52151-6P SE (VK026500)  
CN 501,502: 52151-8P SE (VK026700): PSR-420 only  
CN 503,504: 52151-4P SE (VK026300): PSR-420 only  
CN 505: 52151-10P SE (VK02690)  
CN 506: 52147-7P TE (VK025100)  
CN 801: 52151-7P SE (VK026600)
25. Connector  
CN 507: PSB4D30-2 (VT40210)
26. Connector Assembly  
W1: VR 5P (VT39810) CN902-CN903  
W2: HP 5P (VT39820) CN904-CN905  
W3: SW 4P (VT39830) CN906-CN907  
W4: PS 6P (VT73070) CN802-CN901  
W5: JK 7P (VT73080) CN102-CN801  
W6: JP 8P (VT71710) CNJ1-CNJ2  
W7: ROM2 (VT71720)
27. Jumper Wire  
J 201: not installed  
J 202: installed  
J 501-503: installed: PSR-320 only

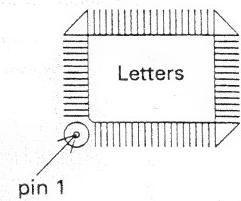
### • HP Circuit Board



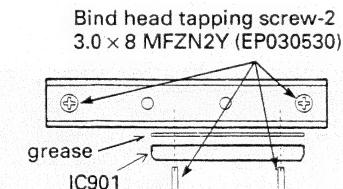
Components side

2NA-VT38060 ▲

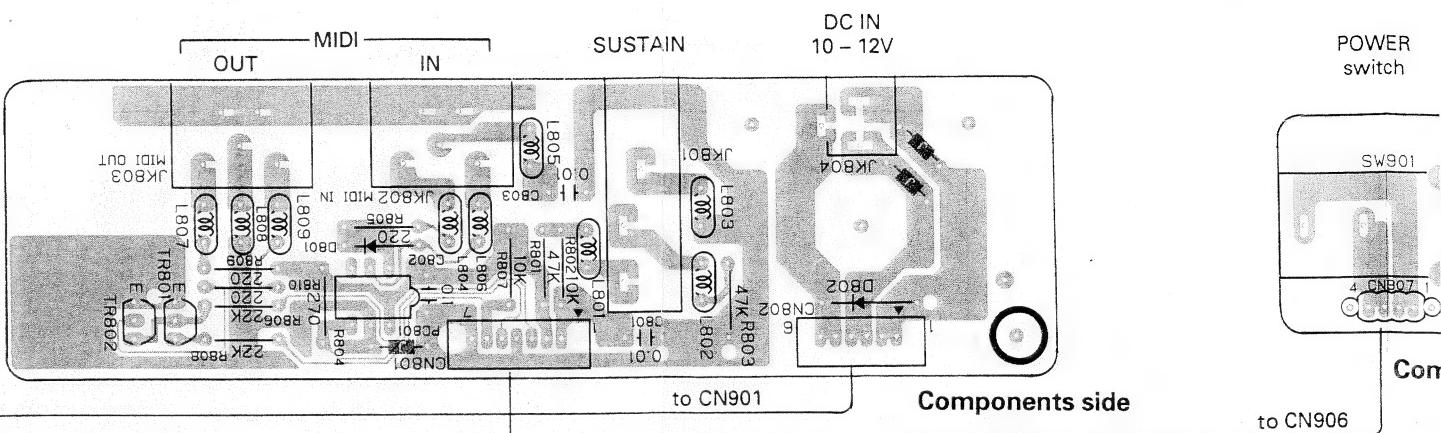
### • IC101, IC301 installation



### • IC901 installation



### • JACK Circuit Board

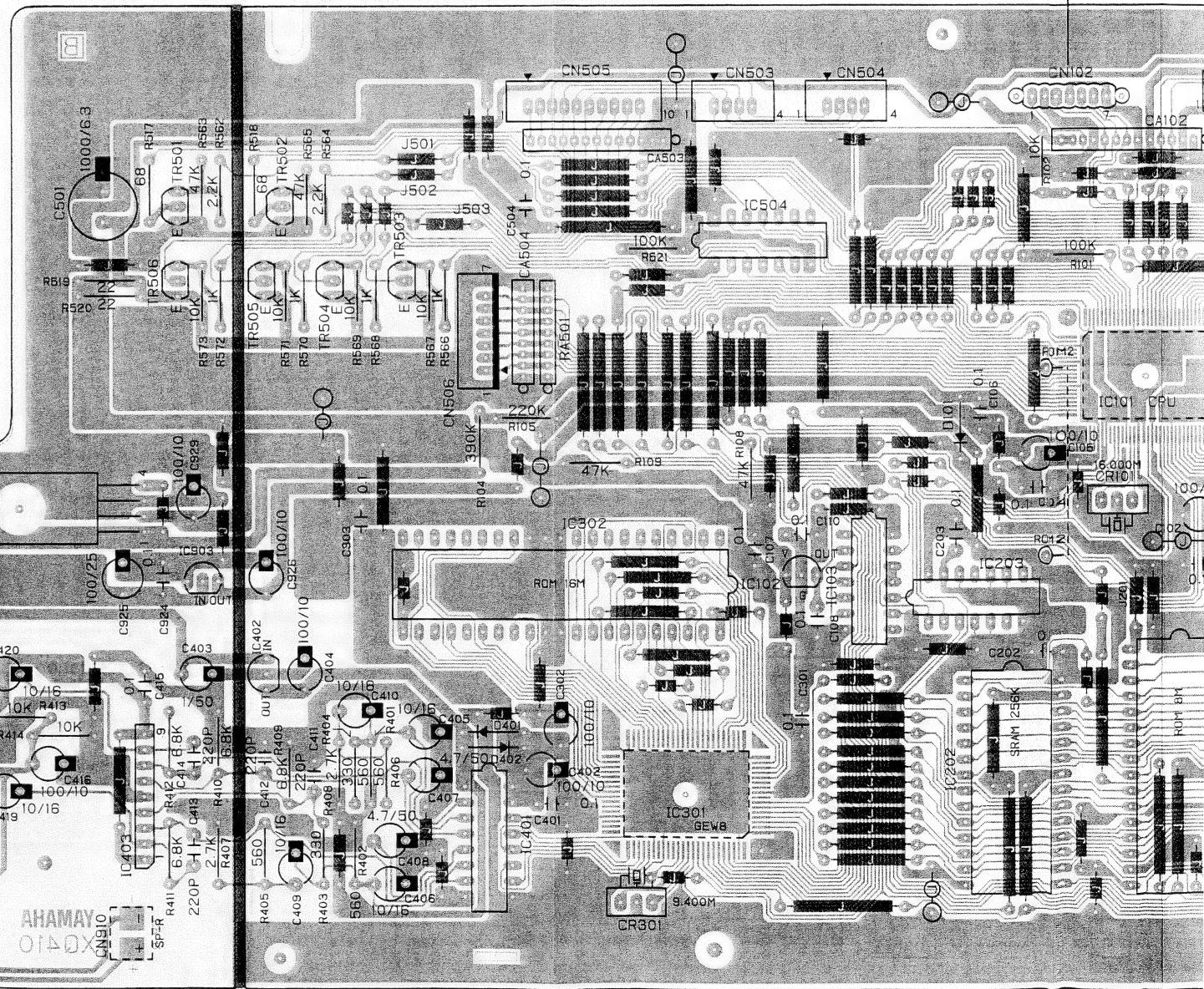


Components side

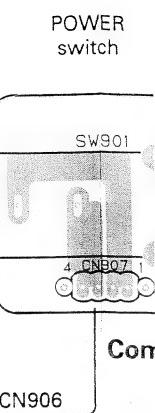
to CN906

POWER switch

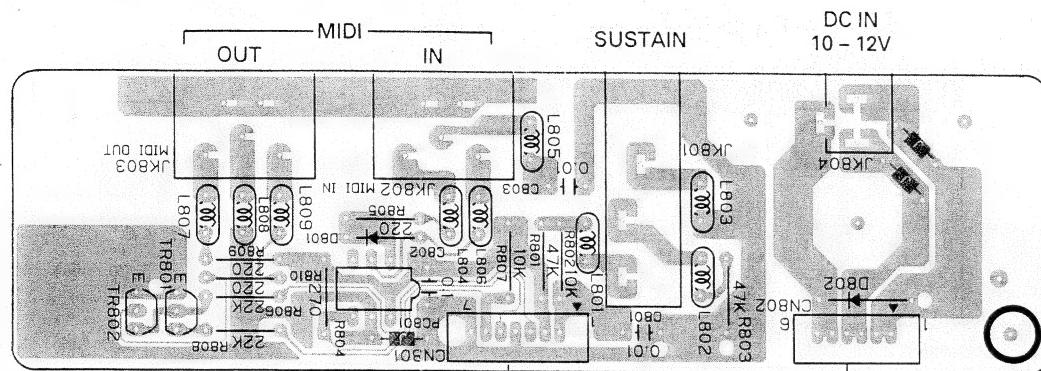
### • M Circuit Board



### • PSW Circuit Board

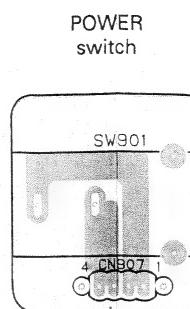


- JACK Circuit Board



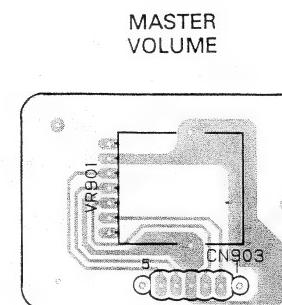
## **Components side**

- PSW Circuit Board



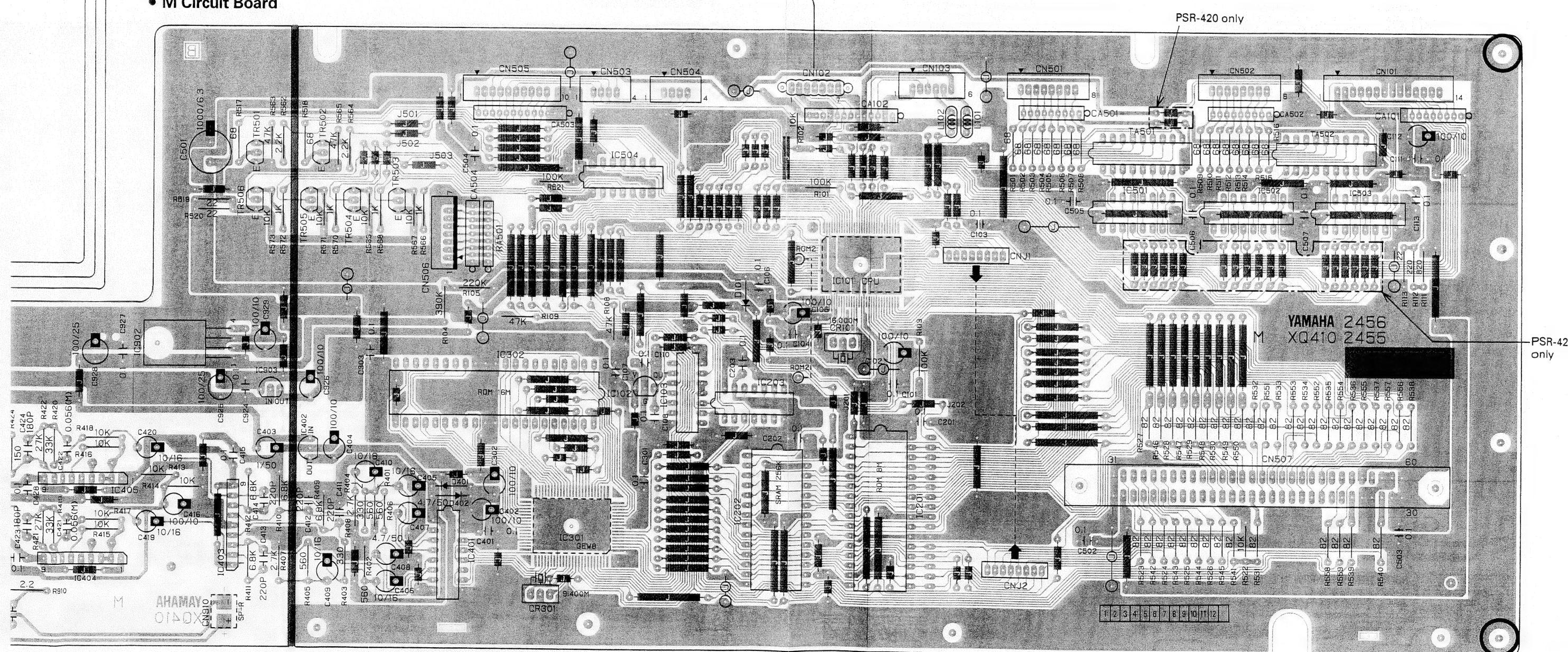
## Components side

- MVR Circuit Board



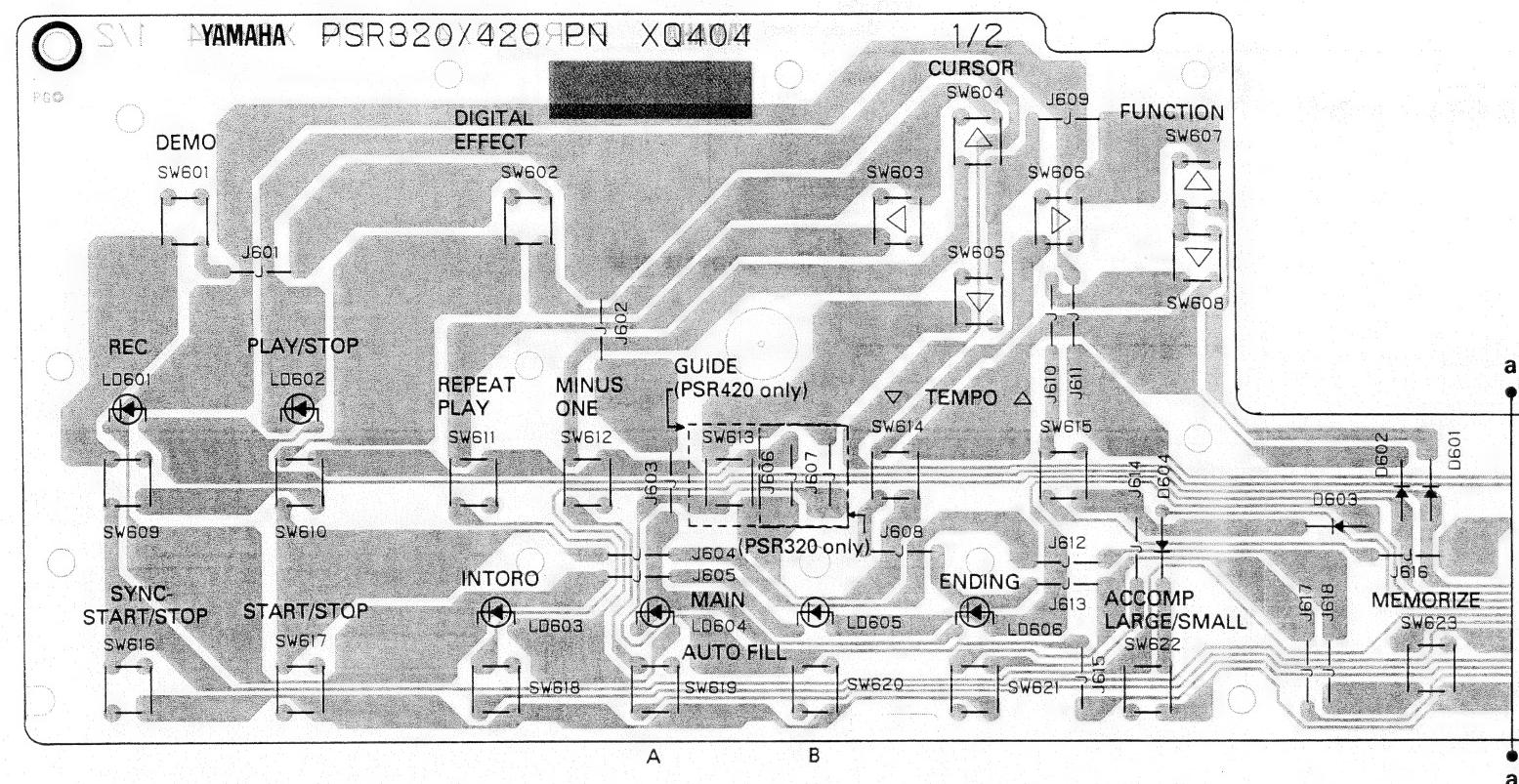
## Components side

- M Circuit Board

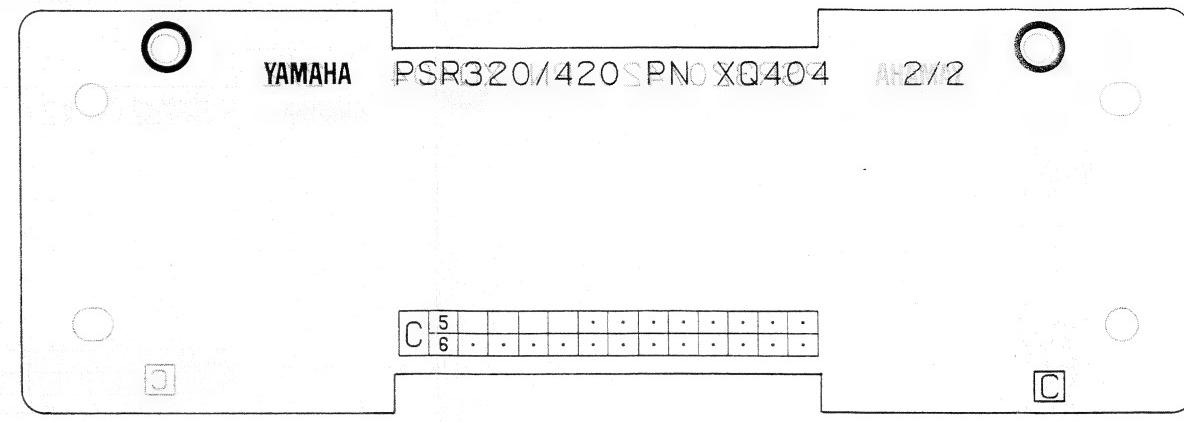


## Components side

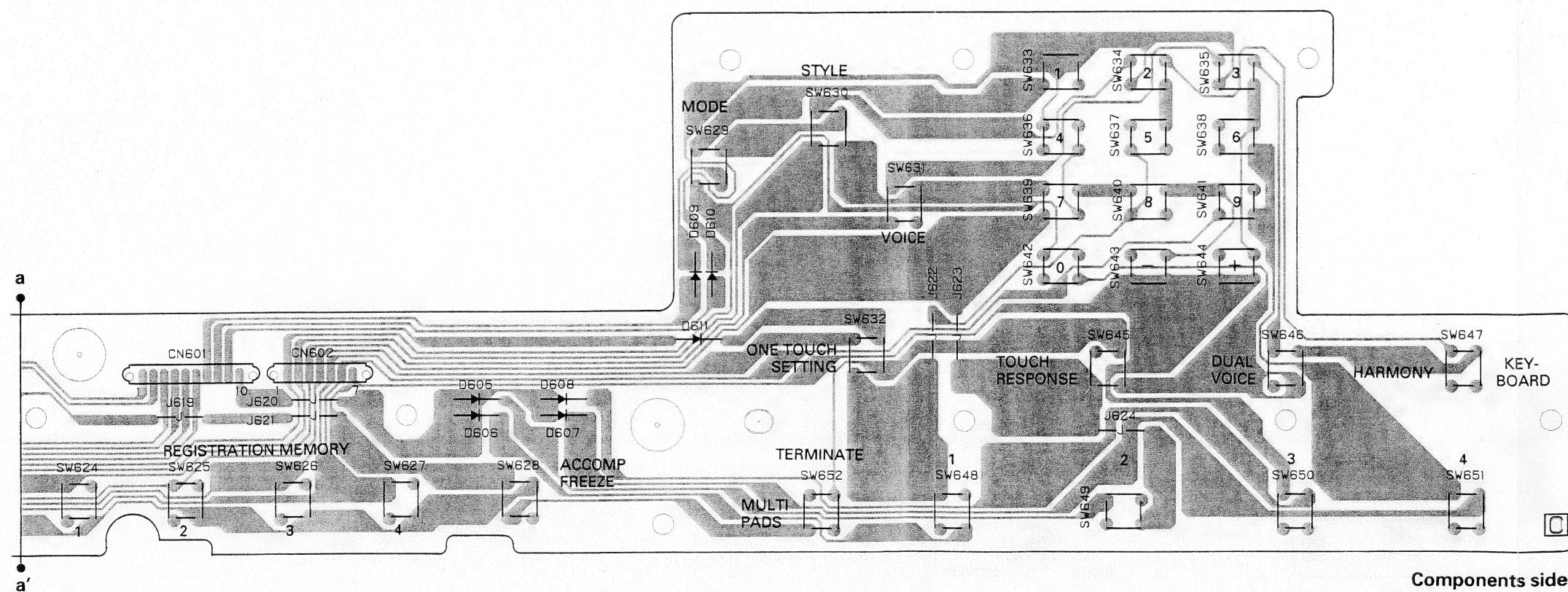
• PN1/2 Circuit Board



• PN2/2 Circuit Board (used for retaining the LCD)

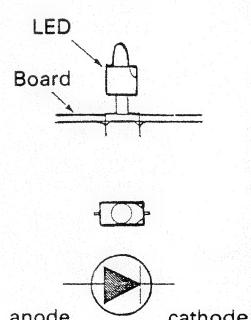


Components side

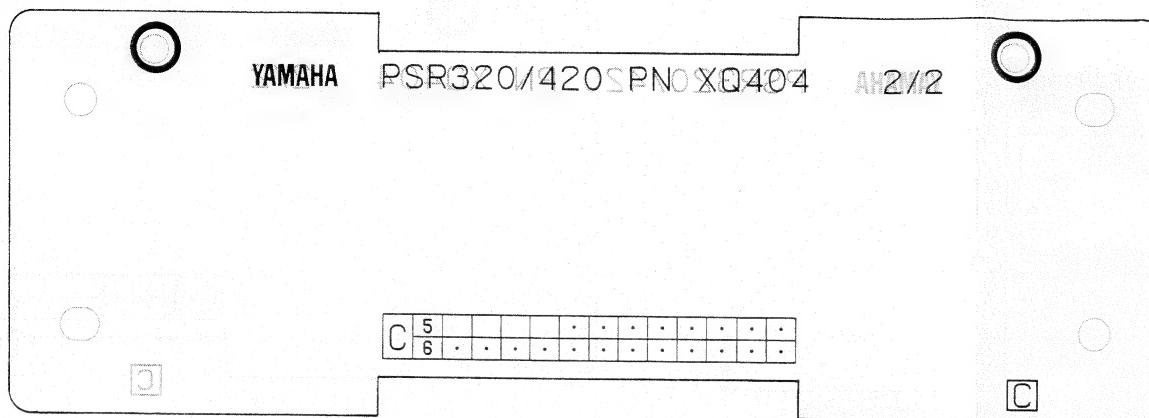
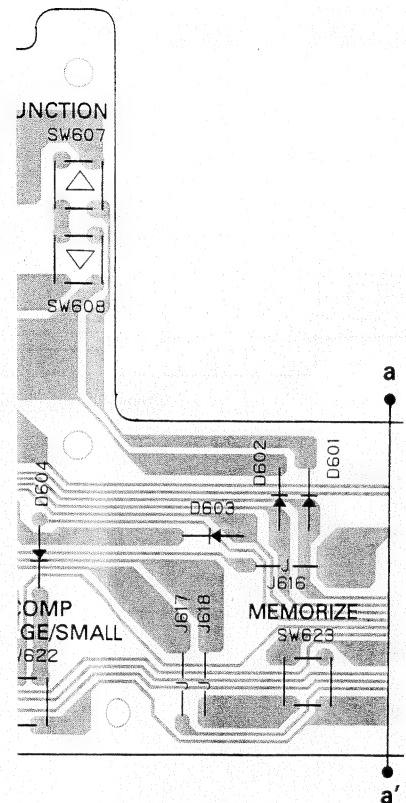


Components side

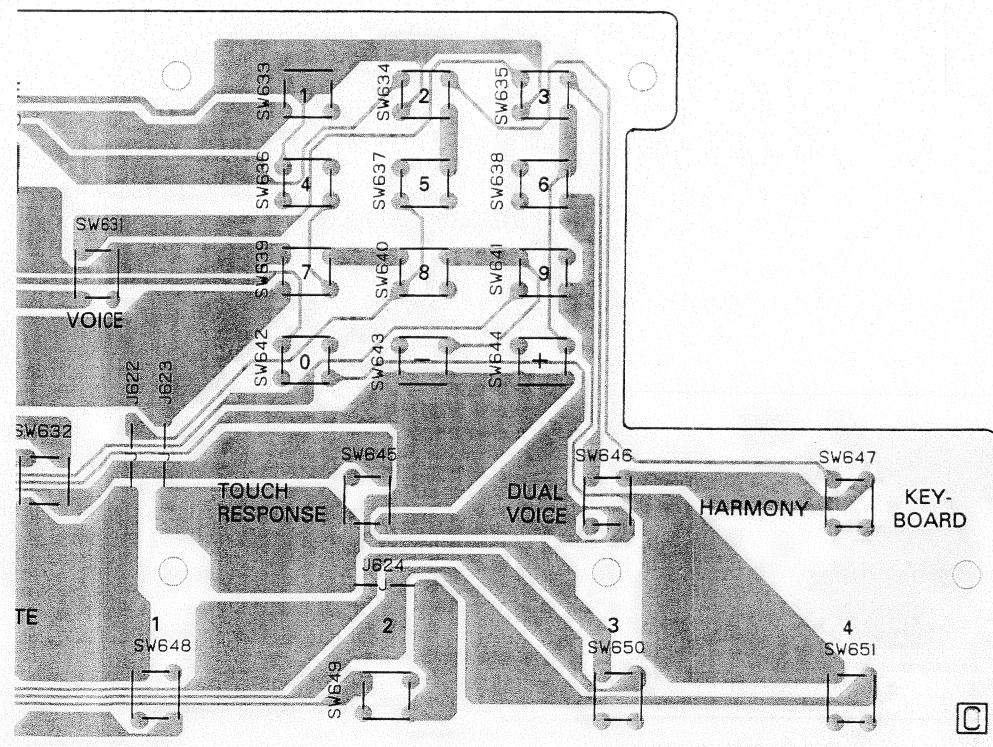
• LED installation



- PN2/2 Circuit Board (used for retaining the LCD)



## Components side



## Components side

Notes)  
PSR-320

JKS20  
Circ

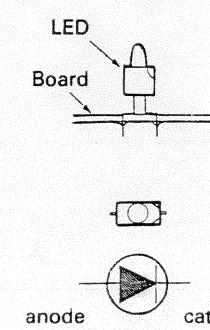
Circuit Board: PN1/2 NX007220 (XQ404C0)  
PN2/2 NX007230 (XQ404C0)

PSR-420  
Circuit Board: PN1/2 NX007340 (XQ404C0)  
PN2/2 NX007350 (XQ404C0)

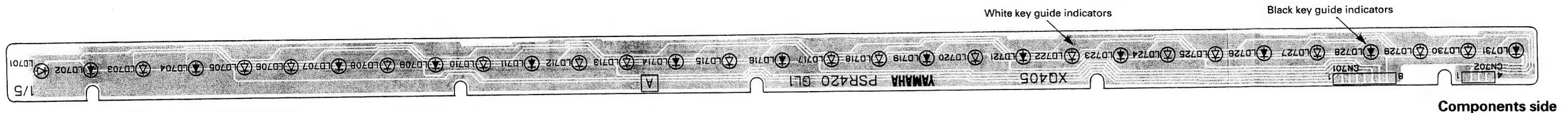
PSR-320 & PSR-420

1. Diode  
D 601-611: IN4148TY-P=10 (VL644200)
  2. LED  
LED 601-606: SLZ-190B-10-T2 (VT387900)
  3. Light Touch Switch  
SW 601-612,  
614-652: EVQ PKE 05B (VT415700)  
SW 613: EVQ PKE 05B (VT415700) GUIDE  
PSR-420 only
  4. Cable Holder  
CN 601: 51048-10P TE (VI878800)  
CN 602: 51048-7P TE (VI878500)
  5. Connector Assembly  
W1: PN2 10P (VT73050)  
to DM-CN505  
W2: PN2 7P (VT73060) to DM-CN506
  6. Jumper Wire  
J 601-605,608-624: installed  
J 606,607: installed: PSR-320 only

- LED installation



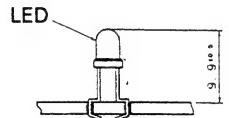
- GL1 Circuit Board (PSR-420 only)



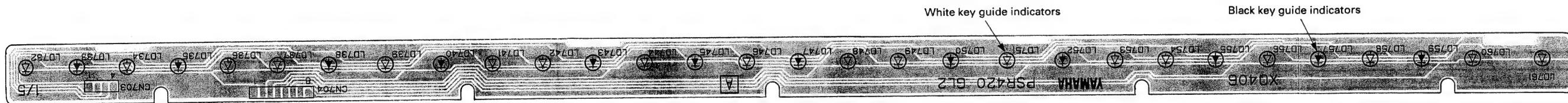
**Notes)**

Circuit Board: GL1 (VT380300) XQ405A0: PSR-420 only

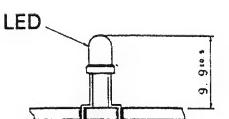
1. LED
  - : SLR-342MGTc7 GR (VT525600) Black keys
  - : SLR-342VRTC7 RE (VT525700) White keys
2. Connector Assembly
  - : GL L-8 (VT704700)
  - : GL L-4 (VT704900)



- GL2 Circuit Board (PSR-420 only)



**Notes)**  
Circuit Board: GL2 (VT380400) XQ406A0: PSR-420 only  
1. LED : SLR-342MGTC7 GR (VT525600) Black keys  
: SLR-342VRTC7 RE (VT525700) White keys  
2. Connector Assembly : GL R-8 (VT704800)  
: GL L-4 (VT704900)



2NA-VT38070  : GL1  
2NA-VT38080  : GL2

## ■ TEST PROGRAM

### A. TYPE OF TEST PROGRAM MODE

There are three test modes as follows:

- Mode 1: Hardware circuit test and each memory address line test
- Mode 2: Hardware circuit test and entire memory address test
- Mode 3: RAM backup function test

### B. HOW TO ENTER THE TEST PROGRAM

While holding down white keys of the keyboard, turn on the POWER switch, then the test program is initiated.  
Pressing keys are as listed below.

Test mode	Pressing keys
Mode 1	C6 and B5
Mode 2	C6 and B5 and A5
Mode 3	C6 and B5 and C2

When the system enters the test on mode 2 or mode 3, then the data on RAM is overwritten.

### C. TEST PROGRAM

#### Mode1/Mode2

Test order	Test Program
1	Keyboard detect CPU test
2	RAM test
3	PROGRAM ROM verify
4	WAVE ROM verify
5	Switch, LED/LCD, Version display, Music cartridge, Foot pedal, Keyboard contact point, MIDI, Guide lamps

Guide lamps test is the test for a PSR-420.

There are some differences in each test between the test mode 1 and test mode 2.

It takes a few minutes to complete the initial tests on the test mode 2. After the initial tests have been performed, "TstMode2" message will appear on the display so you could perform other tests.

#### Mode 3

Test order	Test Program
1	Keyboard detect CPU test
2	RAM test
3	Backup battery test ("***: Voltage" is displayed)

### D. EXIT

Turn the POWER off to quit the test.

### 1. INITIAL TESTS

The following tests will be performed automatically when the test program is initiated.

- a Keyboard detect CPU test
- b RAM test
- c PROGRAM ROM verify
- d WAVE ROM verify

The test results of each test are indicated on the display.

Test	OK	NG
Keyboard detect CPU	no change	no change
RAM(Mode 1/Mode 2)	no change	"Err""M=1 RAM"
RAM(Mode 3)	no change	"Err""M=3 RAM"
PROGRAM ROM	no change	"Err""M=1 ROM"
WAVE ROM	no change	"Err""M=1 WROM"

If the entire tests listed above are OK, the display will show "TstMode1" or "TstMode2" message according to the activated test mode.

#### 1-1. Keyboard Detect CPU Test

Checks to see if data is sent from the CPU for keyboard touch detection

If data is not sent from, or if abnormal data is sent, an test is NG.

If an error occurs during the keyboard contact detection, the system does not enter the test mode.

If the test is OK, the system will proceed to test the RAM test.

#### 1-2. RAM Test

If the test is OK on test mode 1 or test mode 2, then the system will proceed to the next test.

If the test is OK on test mode 3, then the system will display the version of ROM and then exit the test.

If an error is detected, press the [REPEAT PLAY] to proceed to test the next one, but the test function may not correctly work.

#### 1-3. Program ROM Verify Check

Even when an error is detected, you can proceed to the next test by pressing the [REPEAT PLAY] key, however the test quality is not guaranteed.

#### 1-4. Wave ROM Verify Check

If an error is detected, pressing [REPEAT PLAY] will proceed to the next test.

### 2. ROM VERSION DISPLAY MODE

In order to verify the ROM versions, press the key shown in the table below.

Key	ROM	Display
MODE	Program ROM	Pro Vr**. ***
STYLE#	Style ROM	S\L Vr**. ***
VOICE#	Wave ROM	\V ro Vr**. ***
ONE TOUCH SETTING	Voice parameter ROM	PAr Vr**. ***

### 3. PANEL SWITCH AND LED TEST

Press the panel switches consecutively, if the switch is OK, a sine wave will sound. The level of the sine wave is 21 dB lower than the maximum level.

When a switch is pressed, the LED adjacent to the switch will light up.

If two or more switches are turned on simultaneously, the display will show "---Push Sw".

Pressing [YES] key will sound a sine wave assigned to the L channel, and if you press [NO], a sine wave assigned to the R will output.

If you press the [FREEZE] key of the [REGISTRATION] function, the A/D converted value of the power will appear on the display. (the range of the value is 0 - 152.)

**4. FOOT SWITCH TEST**

Connect a foot switch to the [SUSTAIN] jack on the rear panel and press it on and off. When the foot switch is connected, "Pedal In" message will appear on the display. Check that a sine wave of D3 sounds when the foot switch is off, and a sine wave of D4 will sound when the foot switch is turned on.

When the foot switch is off, the indicated value on the display is in the range of "2FF" to "3FF".

When the foot switch is on, the indicated value is "000" to "0FF".

If you disconnect the foot switch, the sine wave will not be heard and the display will show the "PedalOut" message.

**5. KEYBOARD CONTACT POINT TEST**

Play a scale on the keyboard with a steady and even touch, the corresponding velocity value is indicated on the display and the sounded signal will change depending on the velocity.

If a sine wave or a click is generated, the test is OK.

Velocity value	Output signal
1 - 10	Click
11- 126	Sine wave
127	Click

**6. KEY GUIDE LAMP TEST (PSR-420)**

When you play a scale on the keyboard, the corresponding key guide LED indicator will light up. (maximum: 10)

**7. MIDI TEST**

Connect the MIDI IN to the MIDI OUT via a MIDI cable, sine waves of A3 and A4 will sound alternately with a cycle of 250 msec. for voicing and muting.

**8. LCD TEST**

Check that all dots change to white (OFF) when the [TEMPO DOWN] key is pressed.

When the [TEMPO UP] key is pressed, all dots will change to black (ON).

If you press the [FUNCTION UP], then the LCD back-lit will light up, if the [FUNCTION DOWN] is pressed, the back-lit will turn off.

**9. MUSIC CARTRIDGE TEST**

Insert the supplied music cartridge to the slot, then the display will show the "Cart In" message and the test is initiated. If the test has been initiated on the test mode 2, when the test ends, the display will show a number regardless of the test results.

If you remove the cartridge, the "Cart Out" message will appear on the display and the test will end, then you can activate the other test.

If an error is detected during the test, press the [REPEAT PLAY] to perform to the other one.

**10. SOUND OUTPUT TEST**

Insert an appropriate phone plug into the PHONES jack and check that the correct signal is output from each of the PHONES L and R. If necessary, verify the frequency, output waveform, output level using a frequency counter, oscilloscope and AC voltmeter (with a JIS-C type filter).

Listed below are the specifications of the output during this test.(30 Ω load)

When MASTER VOLUME is set at maximum and the ACCOMP MAIN B switch is pressed:  
PHONES (R): -14.5 dBm ± 2 dB                    PHONES (L): -14.5 dBm ± 2 dB

When MASTER VOLUME is set at minimum and the ACCOMP MAIN B switch is pressed:  
PHONES (R): less than -82.0 dBm                    PHONES (L): less than -82.0 dBm

When MASTER VOLUME is set at maximum and the YES switch is pressed:  
PHONES (R): -14.5 dBm ± 2 dB                    PHONES (L): less than -57.5 dBm

When MASTER VOLUME is set at maximum and the NO switch is pressed:  
PHONES (R): less than -57.5 dBm                    PHONES (L): -14.5 dBm ± 2 dB

When MASTER VOLUME is set at minimum and no switch is pressed:  
PHONES (R): less than -78.5 dBm                    PHONES (L): less than -78.5 dBm

**■ INITIALIZE**

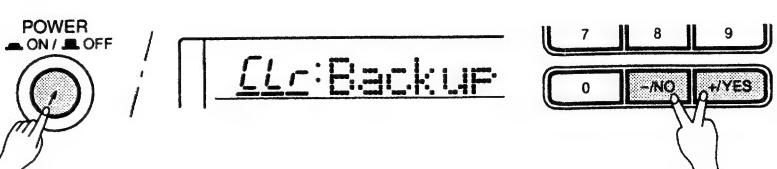
Except for the data listed below, all PSR-320/420 panel settings are reset to their initial settings whenever the power is turned on. The data listed below are backed up — i.e. retained in memory — as long as an AC adapter is connected or a set of batteries is installed.

- Registration Memory
- Song Memory
- Remote Channel
- Keyboard Out
- Song Out
- Accomp Out
- External Clock



- All registration and song memory data, plus the other settings listed above, will be erased and/or changed when the data initialization procedure is carried out.

- If the PSR-320/420 has been "locked up" due to static electricity or other causes, turn the PSR-320/420 off and execute the initialize operation.





**PORTATONE**

**PSR-320**

**PARTS LIST**

**■ CONTENTS**

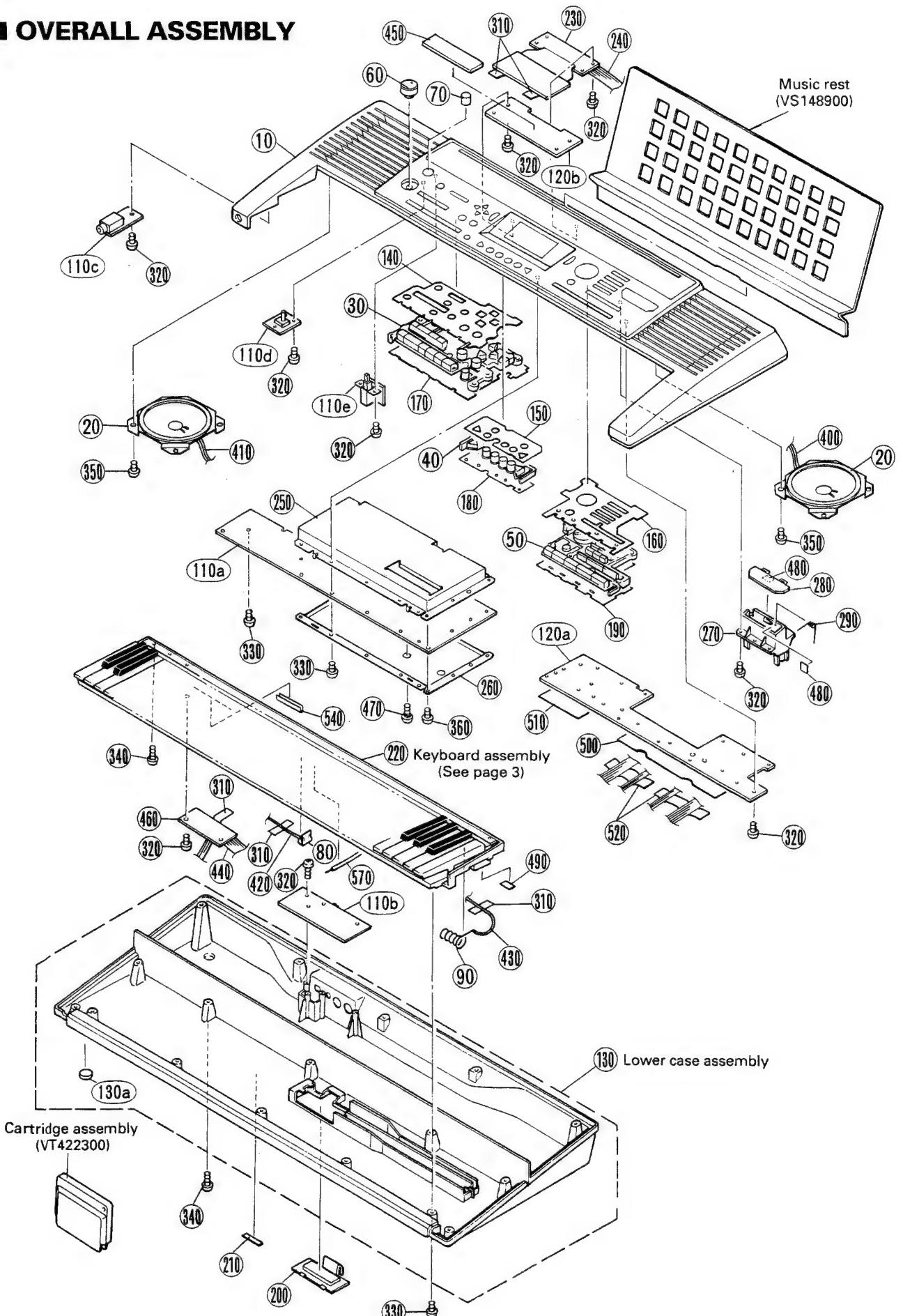
OVERALL ASSEMBLY .....	1
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Note) DESTINATION ABBREVIATIONS

J : Japanese model	A : Australian model
U : U.S.A. model	E : European model
C : Canadian model	D : German model
X : General model	B : British model
M : South African model	I : Indonesian model
H : North European model	O : Chinese model

- The numbers with "pc." or "pcs" in "Remarks" show quantities for each unit.
- The parts with "--" in "Part No." are not available as spare parts.

## ■ OVERALL ASSEMBLY

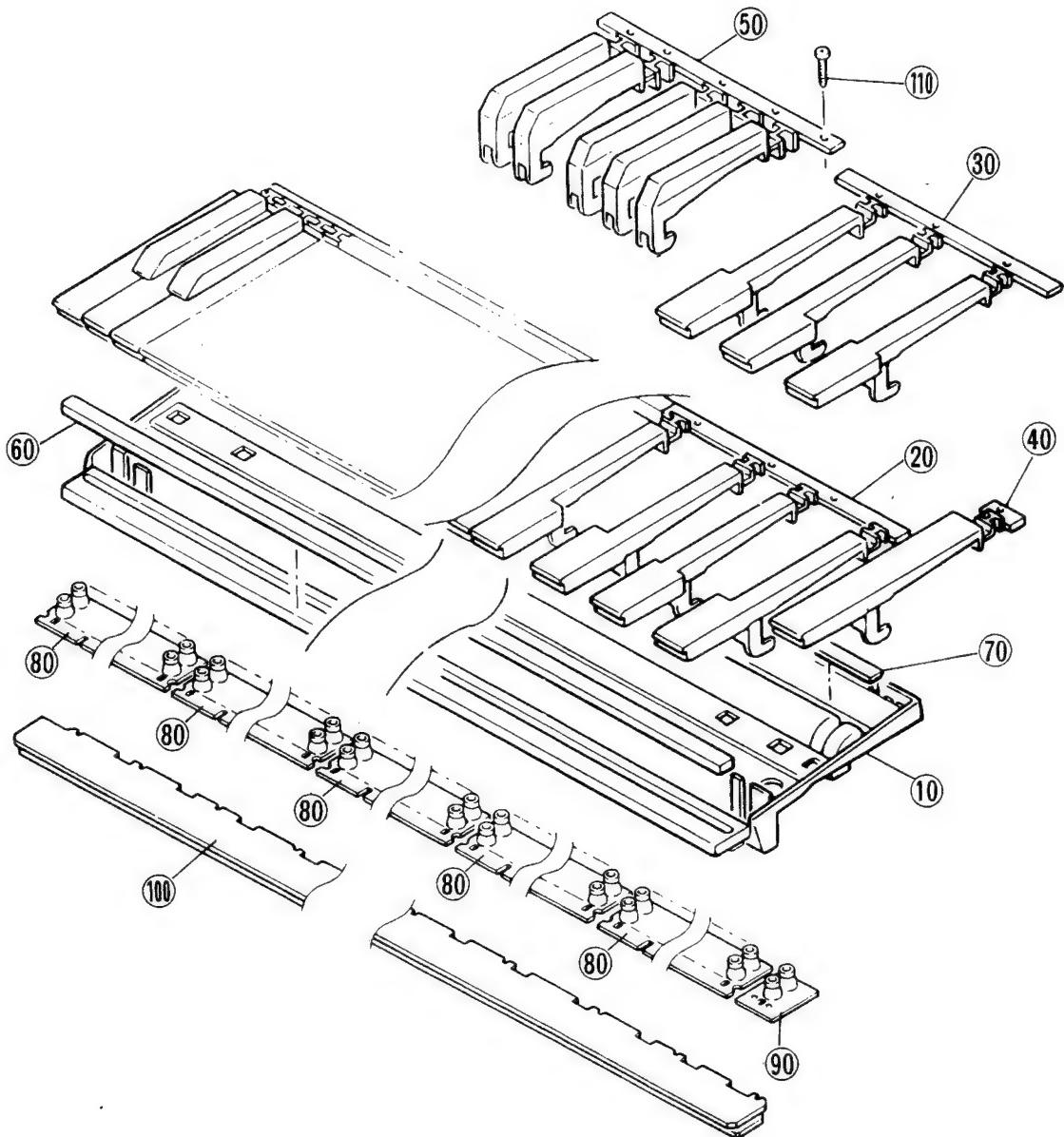


REF NO.	PART NO.	DESCRIPTION		部品名	REMARKS	ランク
*	10	VT419400	OVERALL ASSEMBLY	総組立	PSR320	
*	20	XN789B00	Upper Case Assembly	上ケース Ass'y		
*	30	Speaker		スピーカー		
*	40	VT368400	Key Top Rubber	D	キートップD成形品	DEMO-ACCOMP
*	40	VT368100	Key Top Rubber	B	キートップB成形品	MEMORIZE-FREEZE
*	50	VT368200	Key Top Rubber	C	キートップC成形品	MODE-PAD4
*	60	VQ218900	Knob	V	バーツマミ	MASTER VOLUME
*	70	VQ218800	Knob	(+)	ブッシュユツマミ	POWER switch
*	80	VI663700	Battery Terminal	(-)	端子	03
*	90	V1865800	Spring Terminal		板ネジ	03
*	100	VT521600	LCD Panel	L C D バネル		
*	110a	NX007170	Circuit Board	M	Mシード	J
*	110a	NX007120	Circuit Board	M	Mシード	U,C,E
*	110b	NX007180	Circuit Board	JACK	JACK	J
*	110b	NX007130	Circuit Board	JACK	JACK	U,C,E
*	110c	NX007190	Circuit Board	HP	H P ジード	J
*	110c	NX007140	Circuit Board	HP	H P ジード	U,C,E
*	110d	NX007200	Circuit Board	MVR	M V R シード	J
*	110d	NX007150	Circuit Board	MVR	M V R シード	U,C,E
*	110e	NX007210	Circuit Board	PSW	P S W シード	J
*	110e	NX007160	Circuit Board	PSW	P S W シード	U,C,E
*	120a	NX007320	Circuit Board	PN1/2	P N 1 / 2 シード	
*	120b	NX007330	Circuit Board	PN2/2	P N 2 / 2 シード	
*	130	VT420700	Lower Case Assembly	下ケース Ass'y		
*	130a	CB043750	Foot	BL T1.6	ゴム足	5pcs
*	140	--	Vibration-proof Sheet	A-U	防振シートA-U	(VT42150)
*	150	--	Vibration-proof Sheet	B-U	防振シートB-U	(VT42160)
*	160	--	Vibration-proof Sheet	C-L	防振シートC-L	(VT42170)
*	170	--	Vibration-proof Sheet	A-L	防振シートA-L	(VT42180)
*	180	--	Vibration-proof Sheet	B-L	防振シートB-L	(VT42190)
*	190	--	Vibration-proof Sheet	C-L	防振シートC-L	(VT42200)
*	200	VM754600	Battery Cover Assembly		バッテリーカバーアッセ	
*	210	--	Label		規格・製番ラベル	(VT42040)
*	220	VM894000	Keyboard Assembly	16L	16L鍵盤Ass'y	
*	230	VT426600	LCD	DMC-50577N-B	液晶ディスプレイ	28
*	240	VT705000	Connector Assembly	LCD	LCD束線Ass'y	12
*	250	VT426700	Shield Box	U	シールドボックスU	06
*	260	VT426800	Shield Box	L	シールドボックスL	06
*	270	VT367600	Cartridge Guide		CARTガイド成形品	
*	280	VT368500	Cartridge Cover		CART蓋成形品	
*	290	VT422400	Spring		回転バネ	01
*	310	VA126100	Filament Tape	12X50	粘着テープ	01
*	320	EP600280	Bind Head Tapping Screw-P	3.0X8 MFZN2Y	+バインドPタイト	03
*	330	EP600300	Bind Head Tapping Screw-P	3.0X12 MFZN2Y	+バインドPタイト	01
*	340	VK228100	Bind Head Tapping Screw-P	3.0X25 MFZN2Y	+バインドPタイト	01
*	350	V8931600	Bind Head Tapping Screw-P	4.0X8 MFZN2BL	+バインドPタイト	01
*	360	VC069600	Bind Head Tapping Screw-B	2.6X6 MFZN2Y	+バインドBタイト	01
*	390a	--	Label	FCC・CE	FCC・CEシール	(VT05610)
*	390b	--	Label	CE	CEマークラベル	(VT38760)
*	400	--	Connector Assembly	SP-R	SP束線R	(VT42850)
*	410	--	Connector Assembly	SP-L	SP束線L	(VT42860)
*	420	--	Connector Assembly	BATT(+)	電池線一端ラス	(VT42870)
*	430	--	Connector Assembly	BATT(-)	電池線一端マイナス	(VT42880)
*	440	--	Connector Assembly	MKS	MKS束線Ass'y	(VT70510)
*	450	VT617400	LCD Cushion		LCDクッション	
*	460	VQ305200	Circuit Board	MKS	MKSシード	10
*	470	EP600310	Bind Head Tapping Screw-P	3.0X16 MFZN2Y	+バインドPタイト	01
*	480	--	Vibration-proof Tape	E	防振テープ	(VT70320)
*	500	--	Insulation Sheet	A	ファイバー紙A	(VT80030)
*	510	--	Insulation Sheet	B	ファイバー紙B	(VT80030)
*	520	--	Filament Tape	19X70	粘着テープ	(VF29880)
*	540	--	Vibration-proof Tape	9X12	防振テープ	(VM90970)
*	560	--	Tape	120X20	綿テープ	(VT82640)
*	570	--	GND Wire		アース線	(VT85520)
*	90	VS148900	ACCESSORIES	付属品		
*	130	VS276100	Music Rest	譜面立		
*	190	VT865900	AC Adapter	ACアダプタ		
*	220	VT422300	Japanese Guide Set	和文シート	J	11
*			Cartridge Assembly	CART Ass'y	J	

\* New Parts (新規部品)

ランク : Japan only

## ■ KEYBOARD ASSEMBLY



REF NO.	PART NO.	DESCRIPTION	部品名	REMARKS	ランク
10	VM894000	KEYBOARD ASSEMBLY	16L鍵盤Ass'y	PSR320 (VS15380)	28
20	--	Frame	フレーム		03
30	VH180900	White Keys	白鍵 C E G B	5pcs	03
40	VH181000	White Keys	白鍵 D F A	5pcs	03
40	VH181100	White Key	白鍵 C	1pc.	01
50	VH181200	Black Keys	黒鍵	5pcs	03
60	VH181300	Felt	フェルト		03
70	VH181400	Rubber Sheet	ゴムシート		01
80	VH181500	Rubber Contact	ゴム接点	5pcs	05
90	VH181600	Rubber Contact	ゴム接点		03
100	VM894200	Circuit Board	MKシート	サブ東線付	19
110	EP600310	Bind Head Tapping Screw-P	3.0X16 MFZN2Y	+バインドPタイト	01

\* New Parts (新規部品)

ランク : Japan only

## ■ ELECTRICAL PARTS

REF NO.	PART NO.	DESCRIPTION	部品名	REMARKS	ランク
*	NX007170	ELECTRICAL PARTS	電気部品	PSR320	
*	NX007120	Circuit Board	M	J	
*	NX007180	Circuit Board	M	U,C,E	
*	NX007130	Circuit Board	JACK	J	
*	NX007190	Circuit Board	HP	J	
*	NX007140	Circuit Board	HP	U,C,E	
*	NX007200	Circuit Board	MVR	J	
*	NX007150	Circuit Board	MVR	U,C,E	
*	NX007210	Circuit Board	PSW	J	
*	NX007160	Circuit Board	PSW	U,C,E	
*	VM894200	Circuit Board	MK		19
*	V0305200	Circuit Board	MKS		10
*	NX007320	Circuit Board	PN1/2		
*	NX007330	Circuit Board	PN2/2		
*	NX007170	Circuit Board	M	J	
*	NX007120	Circuit Board	M	U,C,E	
*	NX007180	Circuit Board	JACK	J	
*	NX007130	Circuit Board	JACK	U,C,E	
*	NX007190	Circuit Board	HP	J	
*	NX007140	Circuit Board	HP	U,C,E	
*	NX007200	Circuit Board	MVR	J	
*	NX007150	Circuit Board	MVR	U,C,E	
*	NX007210	Circuit Board	PSW	J	
*	NX007160	Circuit Board	PSW	U,C,E	
*	EP600190	Bind Head Tapping Screw-B	3.0X8 MFZN2BL		01
*	UA654220	Mylar Capacitor	0.0220 50V J		01
*	UA654470	Mylar Capacitor	0.0470 50V J		01
*	UA654560	Mylar Capacitor	0.0560 50V J		01
*	FG612180	Ceramic Capacitor-B	180P 50V K	セラコンB	
*	FG612220	Ceramic Capacitor-B	220P 50V K	セラコンB	01
*	FG612470	Ceramic Capacitor-B	470P 50V K	セラコンB	01
*	FG613120	Ceramic Capacitor-B	1200P 50V K	セラコン(B)	
*	FG651470	Ceramic Capacitor-SL	47P 50V J	セラコン(SL)	
*	FG644100	Ceramic Capacitor-F	0.0100 50V Z	セラコンド	01
*	VH285600	Ceramic Capacitor Array	470P 50V M	セラコンアレイン	02
*	VT487100	Ceramic Capacitor Array	470P X12	セラコンアレイン	02
*	U1528100	Electrolytic Cap.	100.00 10.0V	ケミコ	01
*	U1537100	Electrolytic Cap.	10.00 16.0V	ケミコ	01
*	U1566470	Electrolytic Cap.	4.70 50.0V	ケミコ	01
*	UJ828100	Electrolytic Cap.	100.00 10.0V	ケミコ	01
*	UJ837100	Electrolytic Cap.	10.00 16.0V	ケミコ	01
*	UJ837330	Electrolytic Cap.	33.00 16.0V	ケミコ	01
*	UJ837470	Electrolytic Cap.	47.00 16.0V	ケミコ	01
*	UJ838470	Electrolytic Cap.	470.00 16.0V	ケミコ	01
*	UJ848100	Electrolytic Cap.	100.00 25.0V	ケミコ	01
*	UJ866100	Electrolytic Cap.	1.00 50.0V	ケミコ	01
*	UJ749470	Electrolytic Cap.	4700 25.0V	ケミコ	03
*	UJ819100	Electrolytic Cap.	1000 6.3V	ケミコ	01
*	UN837100	Electrolytic Cap.-BP	10.00 16.0V	B P ケミコ	01
*	VC694800	Semiconductive Cera. Cap.	0.1000 25V Z	半導体セラルコ	01
*	VH227500	Line Filter	SU10VD-10020	一抗	03
*	HF753220	Carbon Resistor	2.2 1/4 J	抵抗	01
*	HF754220	Carbon Resistor	22.0 1/4 J	抵抗	01
*	HF754560	Carbon Resistor	56.0 1/4 J	抵抗	01
*	HF854680	Carbon Resistor	68.0 1/4 J	抵抗	(HF75468)
*	HF854820	Carbon Resistor	82.0 1/4 J	抵抗	(HF75482)
*	HF755150	Carbon Resistor	150.0 1/4 J	抵抗	01
*	HF755220	Carbon Resistor	220.0 1/4 J	抵抗	01
*	HF755270	Carbon Resistor	270.0 1/4 J	抵抗	01
*	HF755330	Carbon Resistor	330.0 1/4 J	抵抗	01
*	HF755560	Carbon Resistor	560.0 1/4 J	抵抗	01
*	HF755820	Carbon Resistor	820.0 1/4 J	抵抗	01
*	HF756100	Carbon Resistor	1.0K 1/4 J	抵抗	01
*	HF756220	Carbon Resistor	2.2K 1/4 J	抵抗	01
*	HF756270	Carbon Resistor	2.7K 1/4 J	抵抗	01
*	HF756680	Carbon Resistor	6.8K 1/4 J	抵抗	01
*	HF757100	Carbon Resistor	10.0K 1/4 J	抵抗	01
*	HF757150	Carbon Resistor	15.0K 1/4 J	抵抗	01

\* New Parts (新規部品)

ランク : Japan only

REF NO.	PART NO.	DESCRIPTION	部品名	REMARKS	ランク
	HF757220	Carbon Resistor	カーボン抵抗		01
	HF757270	Carbon Resistor	カーボン抵抗		01
	HF757330	Carbon Resistor	カーボン抵抗		01
	HF757470	Carbon Resistor	カーボン抵抗		01
	HF758100	Carbon Resistor	カーボン抵抗		01
	HF758220	Carbon Resistor	カーボン抵抗		01
	HF858390	Carbon Resistor	カーボン抵抗	(HF75839)	01
	VF771900	Resistor Array	抵抗アレイ		01
	XB247A00	IC		OP AMP	01
	XMS93A00	IC		POWER AMP 15W	06
	XI450A00	IC			03
	XM993A00	IC			02
	XPS15A00	IC			02
	IR000400	IC			03
	IR001400	IC			05
	XG658A00	IC			02
	XQ693A00	IC			01
	XQ375A00	IC		CPU <H8/3002>	09
	XQ696A00	IC		SRAM 256K	08
	XQ697A00	IC		MASKED ROM 16M	12
*	XR007A00	IC			
	XM051A00	IC		EPROM 8M (PRGRM)	07
	XQ200A00	IC		DAC	10
	VQ670600	Push Switch	プッシュスイッチ	GEW8S	03
	LB101870	Phone Jack	ホーンジャック	POWER switch	03
	VB3T2600	Phone Jack	ホーンジャック(黒)	PHONES	03
	VC664500	DC IN Connector	電源コネクタ	SUSTAIN	02
	VJ107200	DIN Connector	DINコネクタ	DC IN 10-12V	01
	VI1878200	Cable Holder	ケーブルホルダー	MIDI IN,OUT	01
	VI1878300	Cable Holder	ケーブルホルダー		01
	VI1878400	Cable Holder	ケーブルホルダー		01
	VI1878500	Cable Holder	ケーブルホルダー		01
	VK025100	Wire Trap	ワイヤートラップ		01
	VK026500	Wire Trap	ワイヤートラップ		01
	--	Wire Trap	ワイヤートラップ	(VK02660)	
	--	Wire Trap	ワイヤートラップ	(VK02690)	
	--	Connector	ワイヤートラップ	(VK02730)	
L101	VJ532800	IC Socket	基板用コネクター	(VT40210)	
	VB835000	Coil	コイル		02
L101	VF988800	Coil	コイル	20uH	01
CR101	VT487200	Ceramic Resonator	セラミック振動子		02
CR101	VT630600	Ceramic Resonator	セラミック振動子		02
	VJ338000	Ceramic Resonator	セラミック振動子		03
	VQ320200	Rotary Variable Resistor	セラミック振動子		03
*	IC1815M0	Transistor	トランジスタ		01
	VB941200	Diode	ダイオード		01
	VL723600	Diode	ダイオード		01
	VG181900	Photo Coupler	フォトカップ		03
	VT817300	Digital Transistor	デジタルトランジスタ		
	VQ175600	Transistor	トランジスタ		
	VL456900	Heat Sink	放熱板		04
	--	Cushion	防振テープ	(VT70330)	
	--	Cushion	防振テープ	(VT70340)	
	VA078900	Jumper Wire	ジヤンバー		
	--	Connector Assembly	VR 5P		
	--	Connector Assembly	HP 5P		
	--	Connector Assembly	SW 4P		
	--	Connector Assembly	JPF 8P		
	--	Connector Assembly	PS 6P		
	--	Connector Assembly	JK 7P		
	VM894200	Circuit Board	JK 東線	5芯	CN902--CN903
	VM893900	Diode	H P 東線	5芯	CN904--CN905
	--	Cushion	S W 東線	4芯	CN906--CN907
	--	Cable	J P F 東線	8芯	CNJ1--CNJ2
	--	Cable	P S 東線	A S S Y	CN802--CN901
			J K 東線	A S S Y	CN102--CN801
			M K シート	サブ東線付	(XF656E0)
			ダインオード		19
			シート・クッション		(VH58600)
			ケーブル		(VL31910)
			ケーブル		(VL31920)
	VQ305200	Circuit Board	MKS		(XM324AO)
	VD840500	Ceramic Capacitor-SL	22P 50V J		10
	VK392400	Ceramic Capacitor-F	47000P 16V Z	円筒セラ( F )	01
					01

\* New Parts (新規部品)

ランク : Japan only

REF NO.	PART NO.	DESCRIPTION	部品名	REMARKS	ランク
	VL409500	Coil	BL03RN2-R62T4 0.45		01
	VL674500	Resistor Array	RGLE12X223J		01
	XJ450A00	IC	HD63B05V0D73P	CPU	07
	VF728300	Connector	52147-6P TE		01
	VK025500	Wire Trap	52147-11P TE		01
	VK025600	Wire Trap	52147-12P TE		01
10	--	Vibration-proof Tape	10X64X0.5		
20	UJ828100	Electrolytic Cap.	100.00 10.0V	(VK34680)	01
30	HF756470	Carbon Resistor	4.7K 1/4 J	(VI13840)	01
	HF757470	Carbon Resistor	47.0K 1/4 J		01
CR1	VN002100	Ceramic Resonator	CST8.00MTW140		02
CR1	VQ305500	Ceramic Resonator	8.00M EFOEC8004T3		02
*	NX007320	Circuit Board	PN1/2	P N 1 / 2 シート	
*	NX007330	Circuit Board	PN2/2	P N 2 / 2 シート	(XQ404B0)
*	VT1415700	Light Touch Switch	EVQ PKE 05B	ライトタッチSW 4端子	01
	VI1878500	Cable Holder	51048-7P TE	ケーブルホルダー	01
	VI1878800	Cable Holder	51048-10P TE	ケーブルホルダー	01
*	VL644200	Diode	IN4148TY-P=10	ダイオード	
	VT387900	LED	SLZ-190B-10-T2	L E D	01
	--	Connector Assembly	PN2 7P	P N 束線 2 7 芯	to DM-CN506
	--	Connector Assembly	PN1 10P	P N 束線 1 10 芯	to DM-CN505
*	XN789B00	Speaker	12.0cm 4ohm 5W	スピーカ	
*	VT426600	LCD	DMC-50577N-B	液晶ディスプレイ	12

\* New Parts (新規部品)

ランク : Japan only

**PORTATONE**

**PSR-420**

**PARTS LIST**

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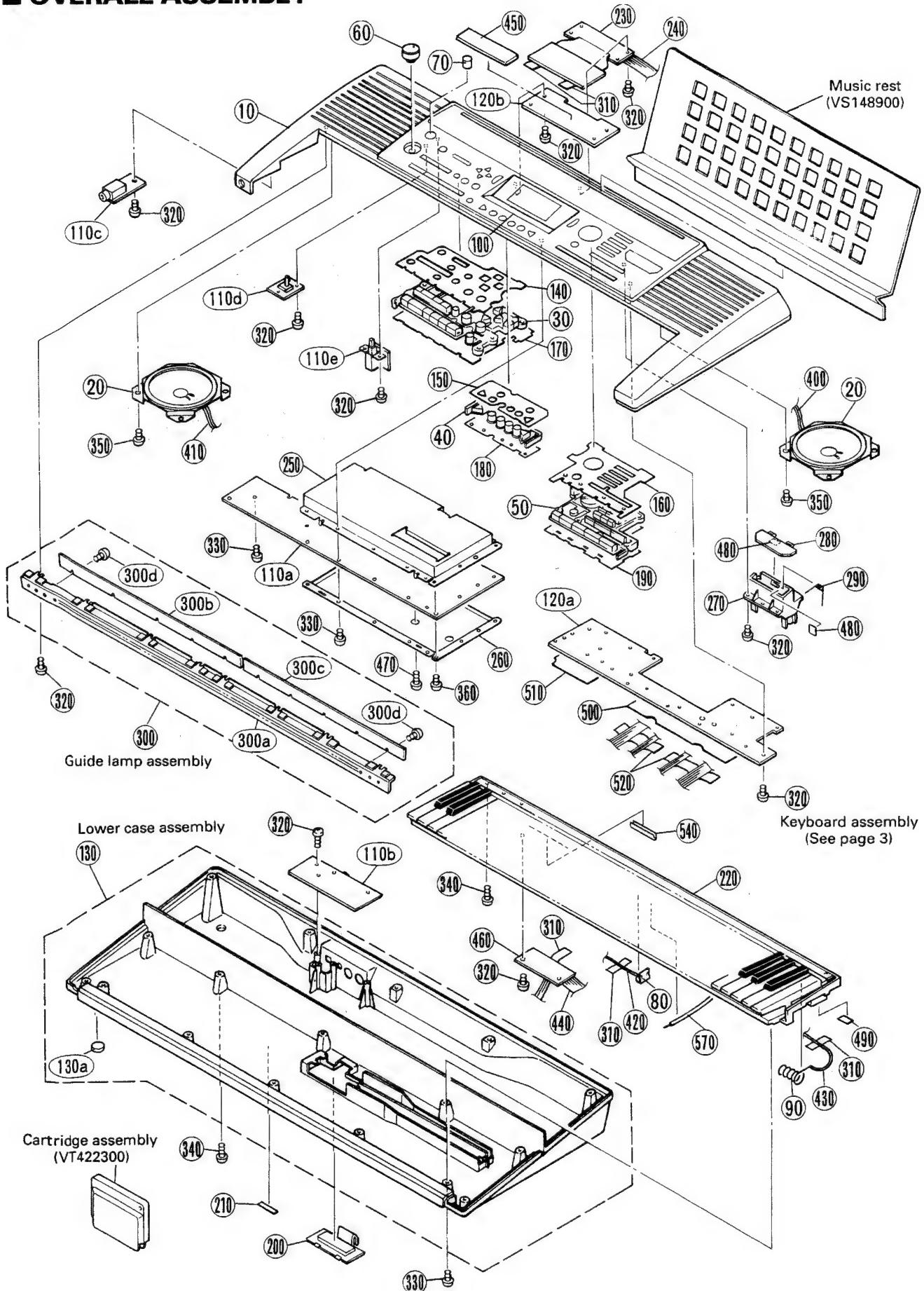
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Note) DESTINATION ABBREVIATIONS

J : Japanese model	A : Australian model
U : U.S.A. model	E : European model
C : Canadian model	D : German model
X : General model	B : British model
M : South African model	I : Indonesian model
H : North European model	O : Chinese model

- The numbers with "pc." or "pcs" in "Remarks" show quantities for each unit.
- The parts with "--" in "Part No." are not available as spare parts.

## ■ OVERALL ASSEMBLY

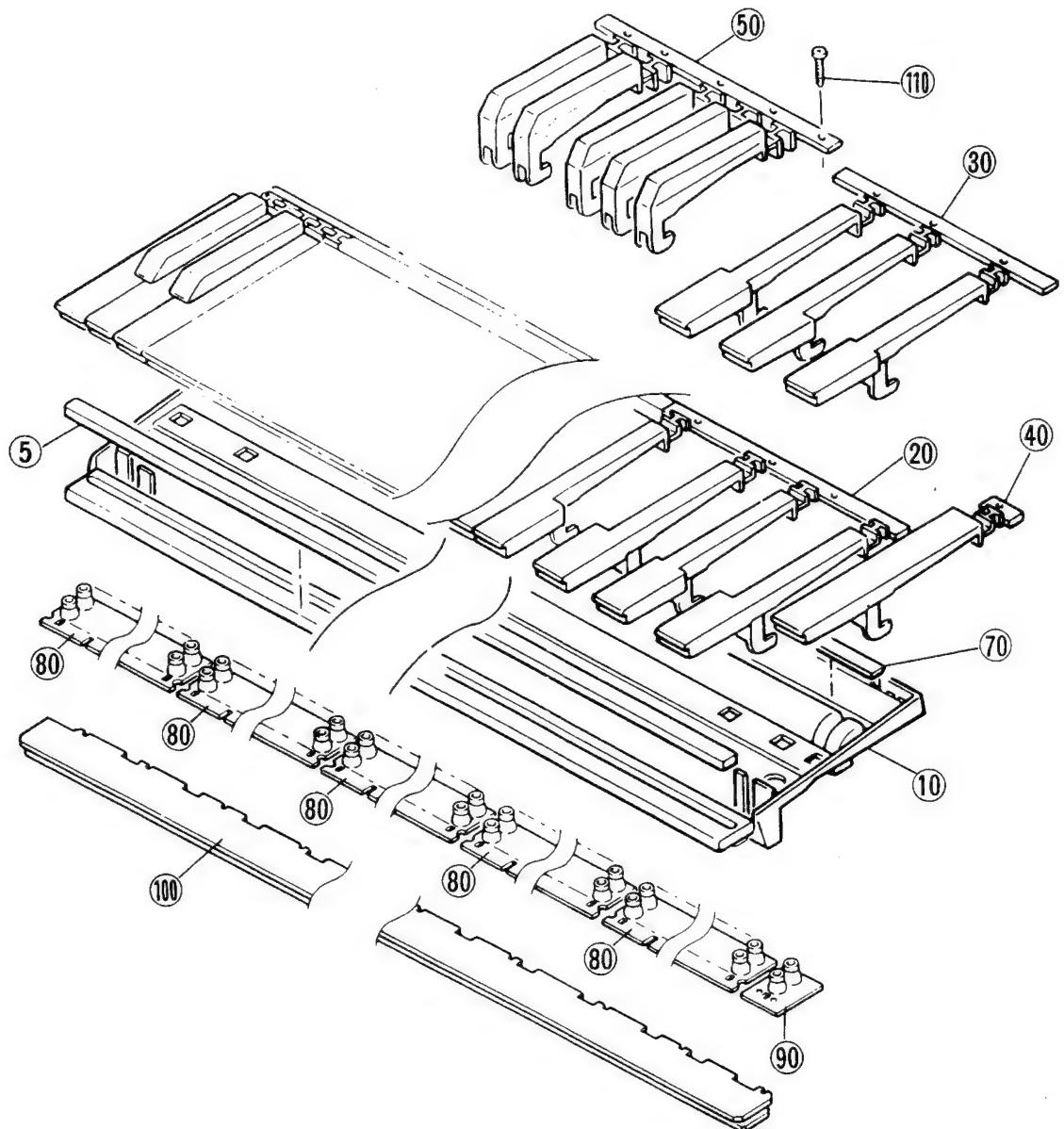


REF.NO.	PART NO.	DESCRIPTION	部品名	REMARKS	ランク	
*	10	VT419300	OVERALL ASSEMBLY			
*	20	XN789800	Upper Case Assembly			
*	30	VT368000	Speaker			
*	40	VT368100	Key Top Rubber	上ケース A s s スピーカー	2pcs DEMO-ACCOMP MEMORIZE-FREEZE	
*	50	VT368200	Key Top Rubber	A B	キートップ A 成形品 キートップ B 成形品	
*	60	VQ218900	Knob	C V	MODE-PAD4	
*	70	VQ218800	Knob	(+)	MASTER VOLUME POWER switch	
*	80	VI663700	Battery Terminal	(-)	03	
*	90	VI865800	Spring Terminal		03	
*	100	VT424800	LCD Panel	L C D バネル		
*	110a	NX007290	Circuit Board	M	M M J H P	
*	110a	NX007240	Circuit Board	M	シシ J A C K	
*	110b	NX007300	Circuit Board	JACK	シシ J A C K	
*	110b	NX007250	Circuit Board	JACK	シシ J A C K	
*	110c	NX007310	Circuit Board	HP	シシ J H P	
*	110c	NX007260	Circuit Board	HP	シシ J H P	
*	110d	NX007320	Circuit Board	MVR	シシ J M V R	
*	110d	NX007270	Circuit Board	MVR	シシ J M V R	
*	110e	NX007330	Circuit Board	PSW	シシ J P S W	
*	110e	NX007280	Circuit Board	PSW	シシ J P S W	
*	120a	NX007340	Circuit Board	PN1/2	シシ J P N 1 / 2	
*	120b	NX007350	Circuit Board	PN2/2	シシ J P N 2 / 2	
*	130	VT420700	Lower Case Assembly			
*	130a	CB043750	Foot	BL T1.6	下ケース A s s ゴム足	
140	--	Vibration-proof Sheet	A-U	防振シート A-U	(VT42150)	
150	--	Vibration-proof Sheet	B-U	防振シート B-U	(VT42160)	
160	--	Vibration-proof Sheet	C-L	防振シート C-L	(VT42170)	
170	--	Vibration-proof Sheet	A-L	防振シート A-L	(VT42180)	
180	--	Vibration-proof Sheet	B-L	防振シート B-L	(VT42190)	
190	--	Vibration-proof Sheet	C-L	防振シート C-L	(VT42200)	
200	VM754600	Battery Cover Assembly		パッテリーカバー A s s y		
210	--	Label		規格、製番ラベル	(VT42010)	
220	VM894000	Keyboard Assembly	16L	16L 鍵盤 A s s y	28	
230	VT426600	LCD	DMC-50577N-B	液晶ディスプレイ	12	
240	VT705000	Connector Assembly		L C D 東線		
250	VT426700	Shield Box		シールドボックス	06	
260	VT426800	Shield Box		シールドボックス	06	
270	VT367600	Cartridge Guide		C A R T ガイド成形品		
280	VT368500	Cartridge Cover		C A R T 盖成形品		
290	VT422400	Spring		回転バネ	01	
300	--	Guide Lamp Assembly		ガイドランプ A s s y		
*	300a	VT367800	Key Guide	GL1	鍵盤ガイド成形品	
*	300b	VT380300	Circuit Board	GL2	G L 1 シート	
*	300c	VT380400	Circuit Board		G L 2 シート	
300d	EP620100	Bind Head Tapping Screw-P	2.6X8 MFZN2Y	+バインドPタイト	10pcs	
300e	--	Fiber Washer	t=0.5	ファイバーワッシャー	10pcs	
310	VA126100	Filament Tape	12X50	粘着テープ	12pcs	
320	EP600280	Bind Head Tapping Screw-P	3.0X8 MFZN2Y	+バインドPタイト	47pcs	
330	EP600300	Bind Head Tapping Screw-P	3.0X12 MFZN2Y	+バインドPタイト	19pcs	
340	VK228100	Bind Head Tapping Screw-P	3.0X25 MFZN2Y	+バインドPタイト	4pcs	
350	VB931600	Bind Head Tapping Screw-P	4.0X8 MFZN2BL	+バインドPタイト	8pcs	
360	VC069600	Bind Head Tapping Screw-B	2.6X6 MFZN2Y	+バインドBタイト	7pcs	
400	--	Connector Assembly	SP-R	SP 束線	(VT42850)	
410	--	Connector Assembly	SP-L	SP 束線	(VT42860)	
420	--	Connector Assembly	BATT(+)	電池線 - プラス	(VT42870)	
430	--	Connector Assembly	BATT(-)	電池線 - マイナス	(VT42880)	
440	--	Connector Assembly	MKS	M K S 束線	(VT70510)	
450	VT617400	LCD Cushion		L C D クッション		
460	VQ305200	Circuit Board	MKS	M K S シート	10	
470	EP600310	Bind Head Tapping Screw-P	3.0X16 MFZN2Y	+バインドPタイト	2pcs	
480	VT703200	Vibration-proof Tape	E	防振テープ	2pcs	
500	--	Insulation Sheet	A	ファイバーパーパー紙	(VT80030)	
510	--	Insulation Sheet	B	ファイバーパーパー紙	(VT80030)	
520	--	Filament Tape	19X70	粘着テープ	(VF29880)	
540	--	Vibration-proof Tape	9X12	防振テープ	(VM90970)	
560	--	Tape	120X20	綿アース線	(VT82640)	
570	--	GND Wire			(VT85520)	
		ACCESSORIES		付属品		
*	VS148900	Music Rest		譜面立て		
	VS276100	AC Adapter	PA-5B	A C アダプター	11	
*	VT865800	Japanese Guide Sheet		和文シート		
*	VT422300	Cartridge Assembly		C A R T A s s y		

\* New Parts (新規部品)

ランク : Japan only 2

## ■ KEYBOARD ASSEMBLY



REF NO.	PART NO.	DESCRIPTION		部品名	REMARKS	ランク
	VM894000	KEYBOARD ASSEMBLY		16L鍵盤Assy	PSR420	28
10	—	Frame	C61	フレーム	(VS15380)	03
20	VH180900	White Keys	CEGB	白鍵 C E G B	5pcs	03
30	VH181000	White Keys	DFA	白鍵 D F A	5pcs	03
40	VH181100	White Key	C'	白鍵 C	1pc.	01
50	VH181200	Black Keys		黒鍵	5pcs	03
60	VH181300	Felt				03
70	VH181400	Rubber Sheet				01
80	VH181500	Rubber Contact	2X12keys	接点ゴム	5pcs	05
90	VH181600	Rubber Contact	2X1key	接点ゴム		03
100	VM894200	Circuit Board	MK	MKシートサブ 東線付		19
110	EP600310	Bind Head Tapping Screw-P	3.0X16 MFZN2Y	+バインドPタイト	21pcs	01

\* New Parts (新規部品)

ランク : Japan only

## ■ ELECTRICAL PARTS

REF NO.	PART NO.	DESCRIPTION	部品名	REMARKS	ランク
*	NX007290	ELECTRICAL PARTS	電気部品	PSR420	
*	NX007240	Circuit Board	Mシシ	J	
*	NX007300	Circuit Board	Mシシ	U,C,E	
*	NX007250	Circuit Board	JACK	J	
*	NX007250	Circuit Board	JACK	J	
*	NX007310	Circuit Board	HP	H P シン	
*	NX007260	Circuit Board	HP	H P シン	
*	NX007320	Circuit Board	MVR	M V R シン	
*	NX007270	Circuit Board	MVR	M V R シン	
*	NX007330	Circuit Board	PSW	P S W シン	
*	NX007280	Circuit Board	PSW	P S W シン	
*	VT380300	Circuit Board	GL1	G L 1 シ	
*	VT380400	Circuit Board	GL2	G L 2 シ	
*	VQ305200	Circuit Board	MKS	M K S シ	
*	VM894200	Circuit Board	MK	MKシート	
*	NX007340	Circuit Board	PN1/2	P N 1 / 2 シート	
*	NX007350	Circuit Board	PN2/2	P N 2 / 2 シート	
*	NX007290	Circuit Board	Mシ	ト	J
*	NX007240	Circuit Board	Mシ	ト	U,C,E
*	NX007300	Circuit Board	JACK	J A C K シ	
*	NX007250	Circuit Board	JACK	J A C K シ	
*	NX007310	Circuit Board	HP	H P シ	
*	NX007260	Circuit Board	HP	H P シ	
*	NX007320	Circuit Board	MVR	M V R シ	
*	NX007270	Circuit Board	MVR	M V R シ	
*	NX007330	Circuit Board	PSW	P S W シ	
*	NX007280	Circuit Board	PSW	P S W シ	
*	EP600190	Bind Head Tapping Screw-2	3.0X8 MFZN2BL	+バインドTP2種溝	01
*	UA654220	Mylar Capacitor	0.0220 50V J	マイラードコーン	01
*	UA654470	Mylar Capacitor	0.0470 50V J	マイラードコーン	01
*	UA654560	Mylar Capacitor	0.0560 50V J	マイラードコーン	
*	FG612180	Ceramic Capacitor-B	180P 50V K	セラコーンB	
*	FG612220	Ceramic Capacitor-B	220P 50V K	セラコーンB	01
*	FG612470	Ceramic Capacitor-B	470P 50V K	セラコーンB	01
*	FG613120	Ceramic Capacitor-B	1200P 50V K	セラコーン(B)	
*	FG651470	Ceramic Capacitor-SL	47P 50V J	セラコーン(SL)	
*	FG644100	Ceramic Capacitor-F	0.0100 50V Z	セラコーンF	01
*	VH285600	Ceramic Capacitor Array	470P 50V M	セラコーンアレイ	02
*	VT487100	Ceramic Capacitor Array	470P X12	セラコーンアレイ	02
*	UJ528100	Electrolytic Cap.	100.00 10.0V	ケミコーン	01
*	UJ537100	Electrolytic Cap.	10.00 16.0V	ケミコーン	01
*	UJ566470	Electrolytic Cap.	4.70 50.0V	ケミコーン	01
*	UJ828100	Electrolytic Cap.	100.00 10.0V	ケミコーン	01
*	UJ837100	Electrolytic Cap.	10.00 16.0V	ケミコーン	01
*	UJ837330	Electrolytic Cap.	33.00 16.0V	ケミコーン	01
*	UJ837470	Electrolytic Cap.	47.00 16.0V	ケミコーン	01
*	UJ838470	Electrolytic Cap.	470.00 16.0V	ケミコーン	01
*	UJ848100	Electrolytic Cap.	100.00 25.0V	ケミコーン	01
*	UJ866100	Electrolytic Cap.	1.00 50.0V	ケミコーン	01
*	UJ749470	Electrolytic Cap.	4700 25.0V	ケミコーン	
*	UJ819100	Electrolytic Cap.	1000 6.3V	ケミコーン	03
*	UN837100	Electrolytic Cap.-BP	10.00 16.0V	B P ケミコーン	01
*	VC694800	Semiconductive Cera. Cap.	0.1000 25V Z	半導体セラミコーン	01
*	VH227500	Line Filter	SU10VD-10020	ラインフィルタ	03
*	HF753220	Carbon Resistor	2.2 1/4 J	カーボン抵抗	01
*	HF754220	Carbon Resistor	22.0 1/4 J	カーボン抵抗	01
*	HF754560	Carbon Resistor	56.0 1/4 J	カーボン抵抗	01
*	HF854680	Carbon Resistor	68.0 1/4 J	カーボン抵抗	(HF75468)
*	HF854820	Carbon Resistor	82.0 1/4 J	カーボン抵抗	(HF75482)
*	HF755150	Carbon Resistor	150.0 1/4 J	カーボン抵抗	01
*	HF755220	Carbon Resistor	220.0 1/4 J	カーボン抵抗	01
*	HF755270	Carbon Resistor	270.0 1/4 J	カーボン抵抗	01
*	HF755330	Carbon Resistor	330.0 1/4 J	カーボン抵抗	01
*	HF755560	Carbon Resistor	560.0 1/4 J	カーボン抵抗	01
*	HF755820	Carbon Resistor	820.0 1/4 J	カーボン抵抗	01
*	HF756100	Carbon Resistor	1.0K 1/4 J	カーボン抵抗	01
*	HF756220	Carbon Resistor	2.2K 1/4 J	カーボン抵抗	01
*	HF756270	Carbon Resistor	2.7K 1/4 J	カーボン抵抗	01
*	HF756680	Carbon Resistor	6.8K 1/4 J	カーボン抵抗	01

\* New Parts (新規部品)

ランク : Japan only

REF NO.	PART NO.	DESCRIPTION	部品名	REMARKS	ランク
	HF757100	Carbon Resistor	10.0K 1/4 J	カ一ボン抵抗	01
	HF757150	Carbon Resistor	15.0K 1/4 J	カ一ボン抵抗	01
	HF757220	Carbon Resistor	22.0K 1/4 J	カ一ボン抵抗	01
	HF757270	Carbon Resistor	27.0K 1/4 J	カ一ボン抵抗	01
	HF757330	Carbon Resistor	33.0K 1/4 J	カ一ボン抵抗	01
	HF757470	Carbon Resistor	47.0K 1/4 J	カ一ボン抵抗	01
	HF758100	Carbon Resistor	100.0K 1/4 J	カ一ボン抵抗	01
	HF758220	Carbon Resistor	220.0K 1/4 J	カ一ボン抵抗	01
	HF858390	Carbon Resistor	390.0K 1/4 J	カ一ボン抵抗	01
	VF771900	Resistor Array	RGLE8X103J	抵抗アレー	01
	XB247A00	IC	UPC4570HA	C	OP AMP
	XM593A00	IC	LA4705	C	POWER AMP 15W
	XL450A00	IC	PQ05RA1	C	REGULATOR +5V
	XM993A00	IC	S-81250PG-T	C	REGULATOR +5V
	XP515A00	IC	AN8005-(FTA)+5V	C	REGULATOR +5V
	IR000400	IC	TC74HC04AP	C	INVERTER
	IR001400	IC	TC74HC14AP	C	S-INVERTER
	IR017400	IC	TC74HC174AP	C	D-FF
	XG658A00	IC	TC74AC32P	C	OR
	XQ693A00	IC	IC-PST993C-T	C	RESET
*	X0375A00	IC	HD6413002FP16	C	CPU <H8/3002>
	XQ696A00	IC	W24257-70LL	C	SRAM 256K
	XQ697A00	IC	MX23C1610PC-12	C	MASKED ROM 16M
	XR008A00	IC	UPC27C80010	C	EPROM 8M (PRGRM)
	XM051A00	IC	PCM69AP-3	C	DAC
	XQ200A00	IC	YMW258B-F	C	GEW8S
	V0670600	Push Switch	SDDL81	ブッシュスイッチ	03
	LB101870	Phone Jack	YKB21-5006	ホーンジヤック(黒)	03
	VB312600	Phone Jack	YKB21-5012 BL	ホーンジャック	02
	VG664500	DC IN Connector	HEC2305	電源コネクタ	01
	YJ107200	DIN Connector	5P YKF51-5050	DINコネクタ	01
	V1878200	Cable Holder	51048-4P TE	ケーブルホルダー	01
	V1878300	Cable Holder	51048-5P TE	ケーブルホルダー	01
	V1878400	Cable Holder	51048-6P TE	ケーブルホルダー	01
	V1878500	Cable Holder	51048-7P TE	ケーブルホルダー	01
	VK025100	Wire Trap	52147-7P TE	ワイヤートラップ	01
	VK026300	Wire Trap	52151-4P SE	ワイヤートラップ	01
	VK026500	Wire Trap	52151-6P SE	ワイヤートラップ	01
	--	Wire Trap	52151-7P SE	ワイヤートラップ	(VK02660)
	VK026700	Wire Trap	52151-8P SE	ワイヤートラップ	01
	--	Wire Trap	52151-10P SE	ワイヤートラップ	(VK02690)
	--	Wire Trap	52151-14P SE	ワイヤートラップ	(VK02730)
L101	VJ532800	Connector	PSB4D30-2	P基板用コネクター	(VT40210)
L101	VB835000	IC Socket	DICF-32CS-E	ICソケット	02
L101	VB835000	Coil	FL5R200QNT 20u	コイル 20uH	01
L101	VF688800	Coil	SBT-0260TF 60u	コイル SB 60uH	01
CR101	VT487200	Ceramic Resonator	16M EFOEC1605T4	セラミック振動子	02
CR101	VT630600	Ceramic Resonator	16.0M CST16.00M	セラミック振動子	02
	VJ338000	Ceramic Resonator	9.40M CST9.40MTW	セラミック振動子	02
	VO320200	Rotary Variable Resistor	A10Kx2	二連ロータリーボリューム	03
	IC1815M0	Transistor	ZSC1815Y,GR	トランジスタ	01
	VI707900	Transistor Array	ULN2803A	トランジスタアレイ	03
	VB941200	Diode	1SS133,1SS176	ダイオード	01
	VL723600	Diode	20E1-FC4	ダイオード	01
	VG181900	Photo Coupler	PC-900V	フォトカップ	03
*	VT817300	Digital Transistor	DTB113ZS TP	デジタルトランジスタ	
	VQ175600	Transistor	2SA(3CG)881Q	トランジスタ	
	VL456900	Heat Sink	F	放熱板	
	--	Cushion	G	防振テープ	
	--	Cushion		防振テープ	(VT70330)
	VA078900	Jumper Wire	0.55	ジヤンバー	
	--	Connector Assembly	VR 5P	VRE線	CN902-CN903
	--	Connector Assembly	HP 5P	HPE線	CN904-CN905
	--	Connector Assembly	SW 4P	SWEP線	CN906-CN907
	--	Connector Assembly	JPF 8P	JPF線	CNJ1-CNJ2
	--	Connector Assembly	PS 6P	PS線	CN802-CN901
	--	Connector Assembly	JK 7P	JK線	CN102-CN801
*	VT380300	Circuit Board	GL1	GL1シート	(XQ405A0)
	VT525600	LED	SLR-342MGTC7 GR	LED	Black keys (13pcs)
					01

\* New Parts (新規部品)

ランク : Japan only

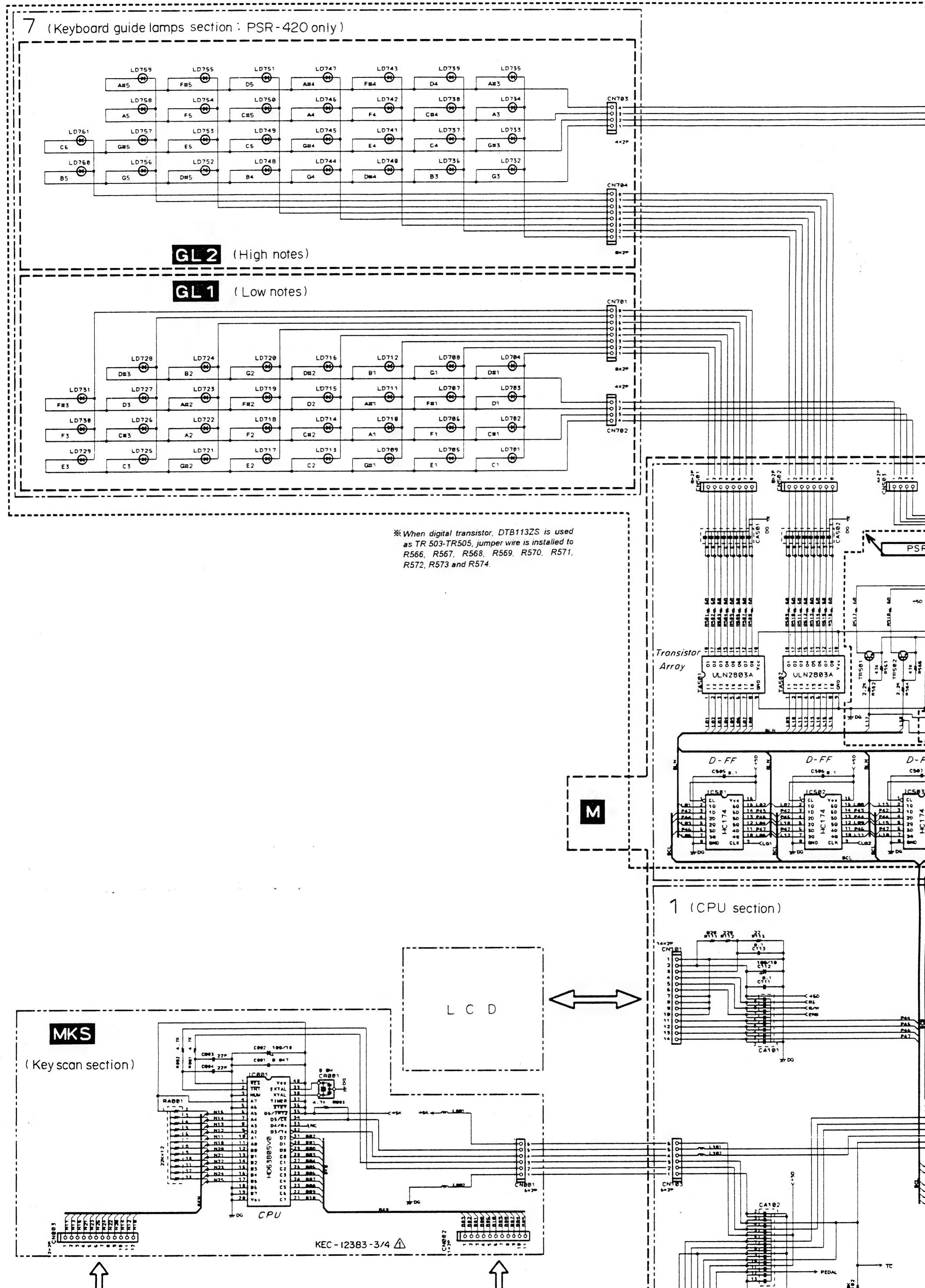
REF NO.	PART NO.	DESCRIPTION	部品名	REMARKS	ランク
	VT525700	LED	SLR-342VRTC7 RE	L E D G L 束線 Ass'y G L 束線 Ass'y	White keys (18pcs)
	VT704700	Connector Assembly	GL L-8		01
	VT704900	Connector Assembly	GL L-4		
*	VT380400	Circuit Board	GL2	G L 2 シート	(XQ406A0)
	VT525600	LED	SLR-342MGTC7 GR	L E D	Black keys (12pcs)
	VT525700	LED	SLR-342VRTC7 RE	L E D	White keys (18pcs)
	VT704800	Connector Assembly	GL R-8	G L 束線 Ass'y	01
	VT704900	Connector Assembly	GL L-4	G L 束線 Ass'y	01
	VM894200	Circuit Board	MK	MKシート サブ束線付	(VQ32760)
	VM893900	Diode	IN4148TY-P=20	ダイオード	19
--	--	Cushion	11P	シート・クッション	(VH58600)
--	--	Cable	12P	ケーブル	(VL31910)
--	--	Cable		ケーブル	(VL31920)
	V0305200	Circuit Board	MKS	M K S シート	(XM324A0)
	VD840500	Ceramic Capacitor-SL	22P 50V J	円筒セラ(SL)	10
	VK392400	Ceramic Capacitor-F	47000P 16V Z	円筒セラ(F)	01
	VL409500	Coil	BL03RN2-R62T4 0.45	コイル 0.45U	01
	VL674500	Resistor Array	RGLE12X223J	抵抗アレイ	01
	XJ450A00	IC	HD63B05V0D73P	IC	07
	VF728300	Connector	52147-6P TE	コネクタ	01
	VK025500	Wire Trap	52147-11P TE	ワイヤートラップ	01
	VK025600	Wire Trap	52147-12P TE	ワイヤートラップ	01
	--	Vibration-proof Tape	10X64X0.5	防振テープ	(VK34680)
	UJ828100	Electrolytic Cap.	100.00 10.0V	ケミコン	01
	HF756470	Carbon Resistor	4.7K 1/4J	カーボン抵抗	01
	HF757470	Carbon Resistor	47.0K 1/4J	カーボン抵抗	01
CR1	VN002100	Ceramic Resonator	CST8.00MTW140	セラミック振動子	02
CR1	Y0305500	Ceramic Resonator	8.00M EFOEC8004T3	セラミック振動子	02
* * *	NX007340	Circuit Board	PN1/2	P N 1 / 2 シート	(XQ404C0)
* * *	NX007350	Circuit Board	PN2/2	P N 2 / 2 シート	(XQ404C0)
	VT415700	Light Touch Switch	EVQ PKE 05B	ライトタッチSW 4端子	01
	VT878500	Cable Holder	51048-7P TE	ケーブルホルダー	01
	VI878800	Cable Holder	51048-10P TE	ケーブルホルダー	01
	VL644200	Diode	IN4148TY-P=10	ダイオード	01
	VT387900	LED	SLZ-190B-10-T2	LED	01
--	--	Connector Assembly	PN2 7P	P N 束線 2 7芯	
--	--	Connector Assembly	PN1 10P	P N 束線 1 10芯	to DM-CN506 to DM-CN505
* 20	XN789B00	Speaker	12.0cm 4ohm 5W	スピーカ	2pcs
* 230	VT426600	LCD	DMC-50577N-B	液晶ディスプレイ	12

\* New Parts (新規部品)

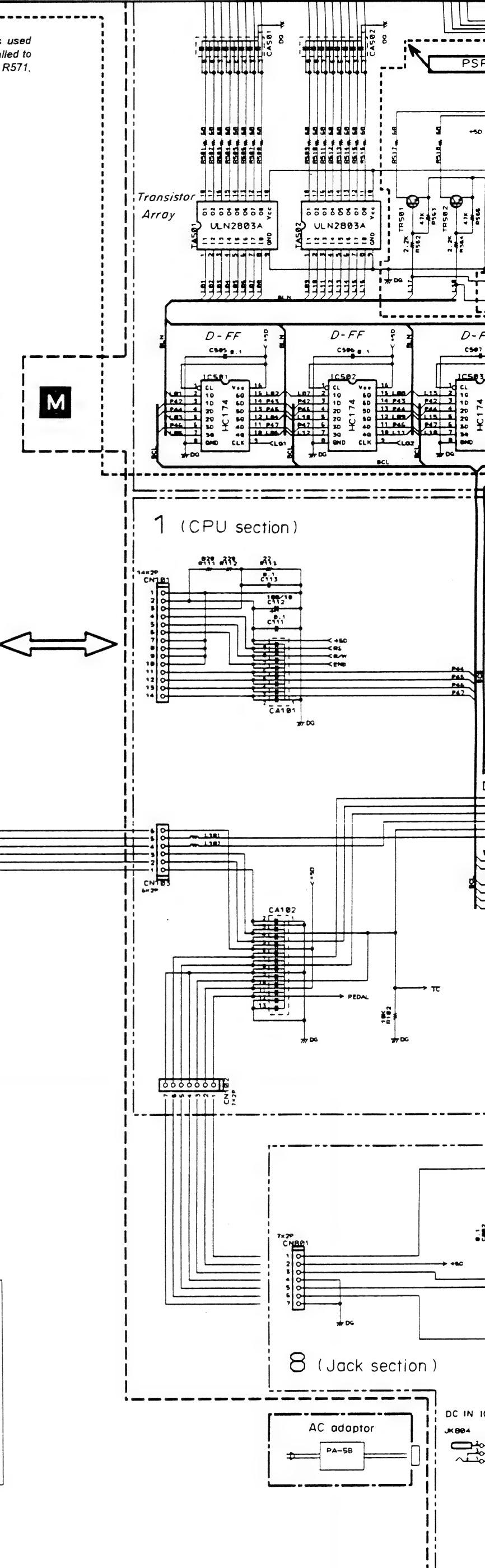
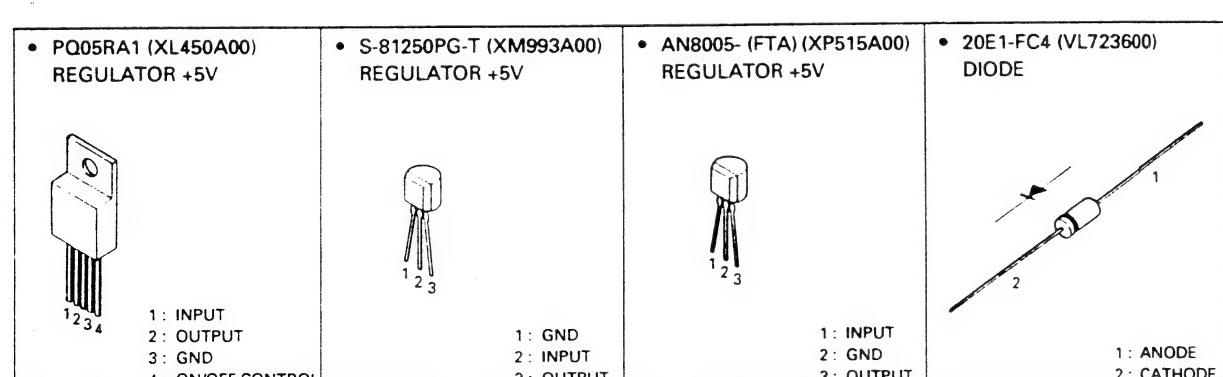
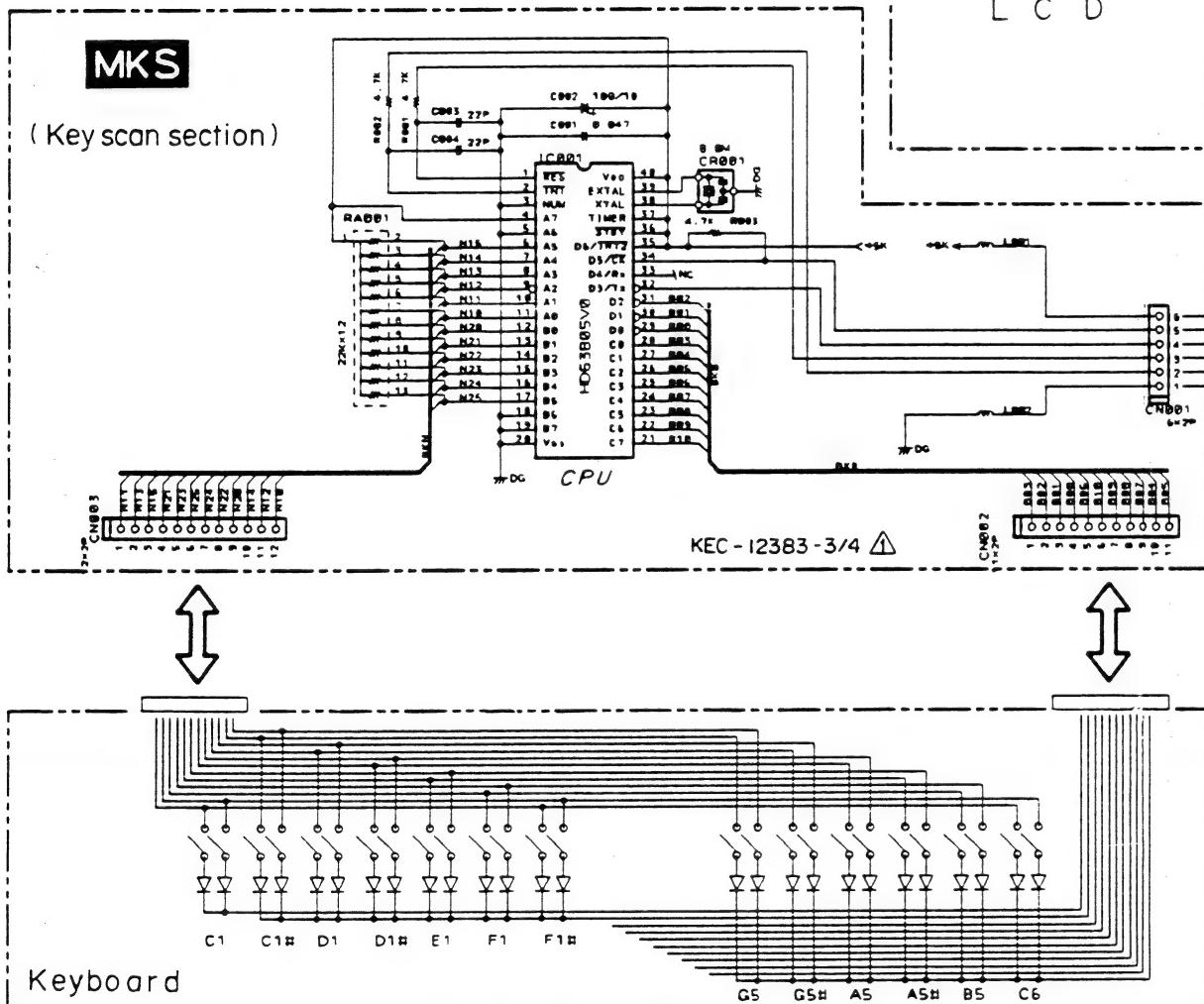
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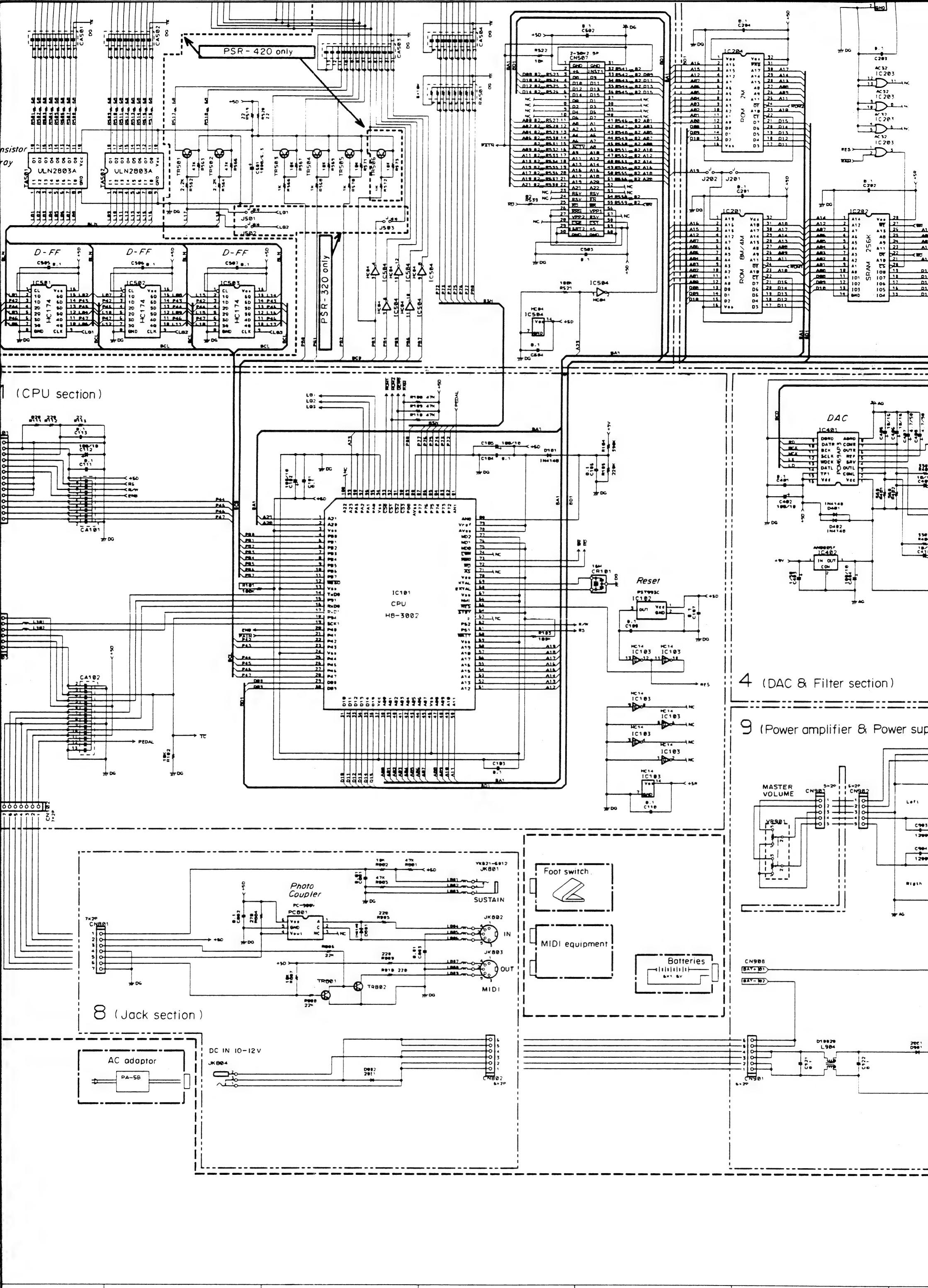
A B C D E F

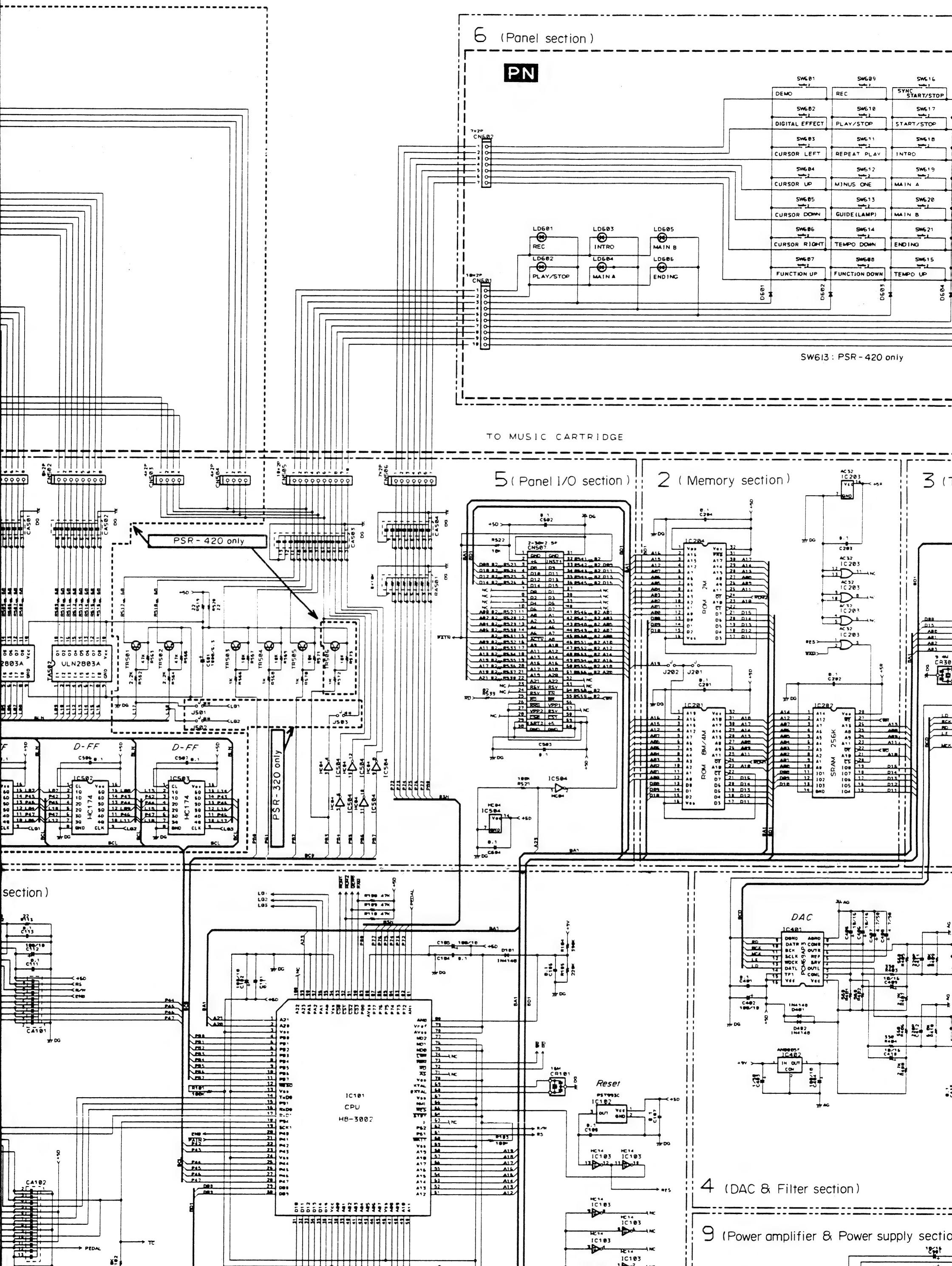
## ■ PSR-320/PSR-420 OVERALL CIRCUIT DIAGRAM

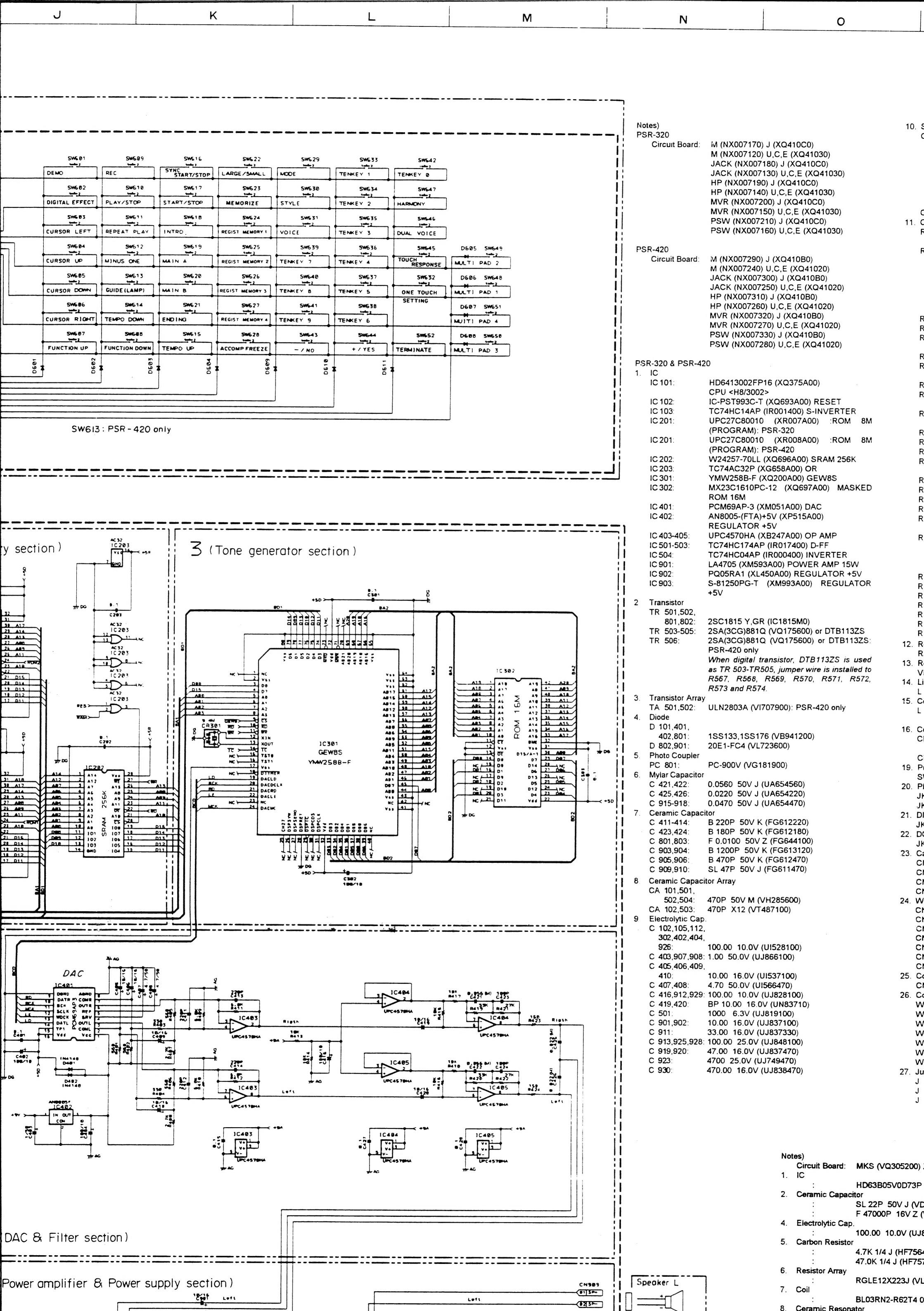


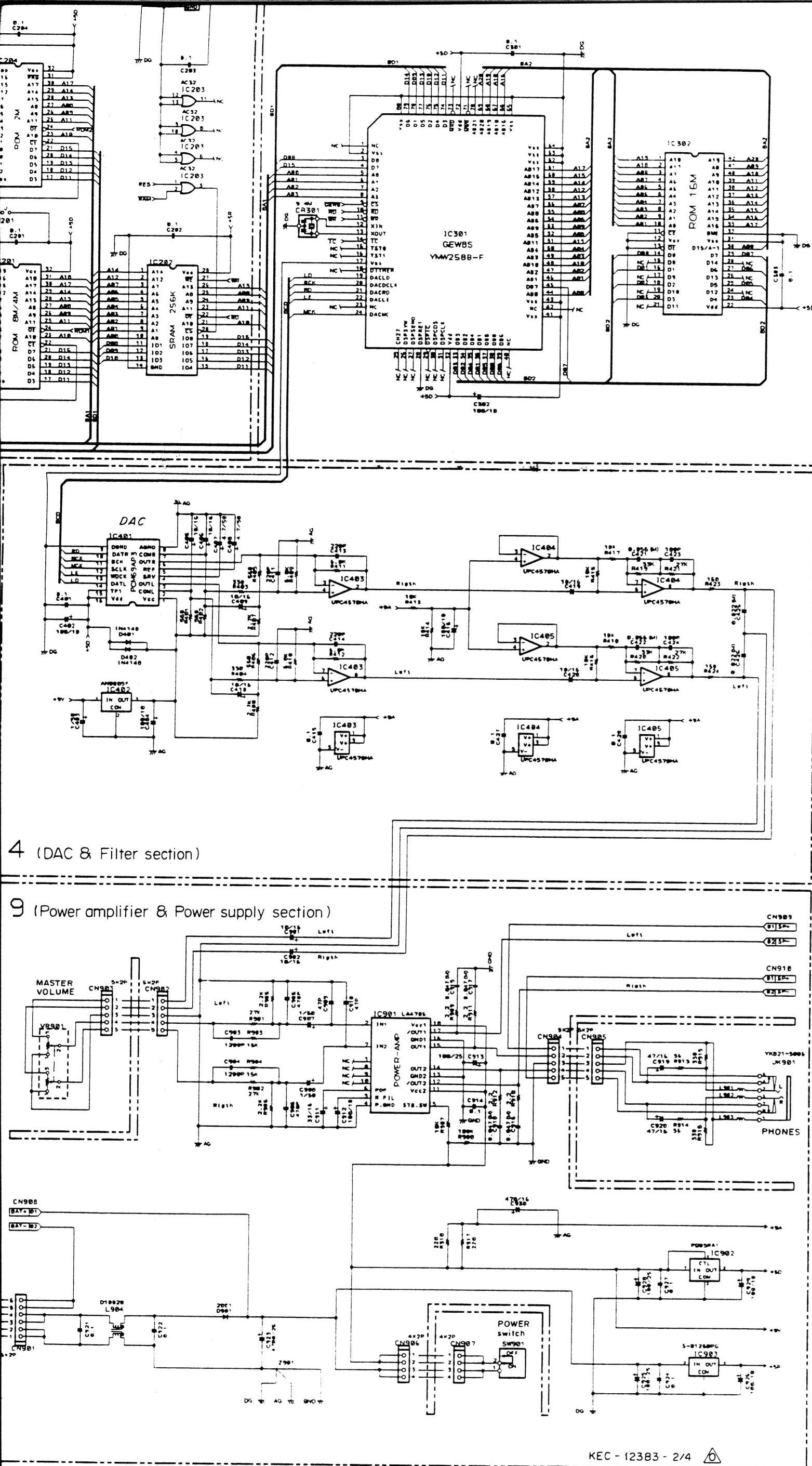
\* When digital transistor, DTB113ZS is used  
as TR 503-TR505, jumper wire is installed to  
R566, R567, R568, R569, R570, R571,  
R572, R573 and R574.









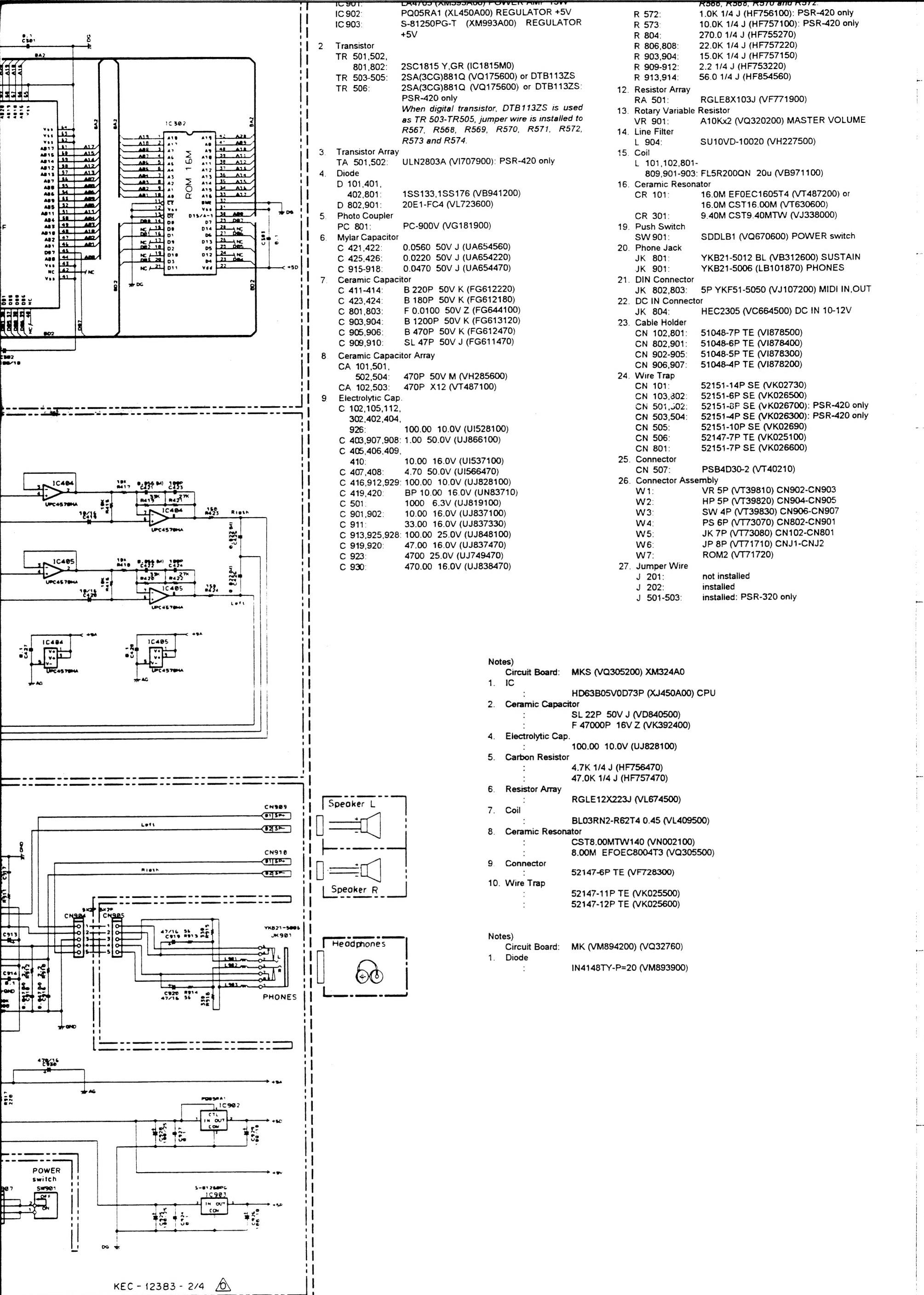


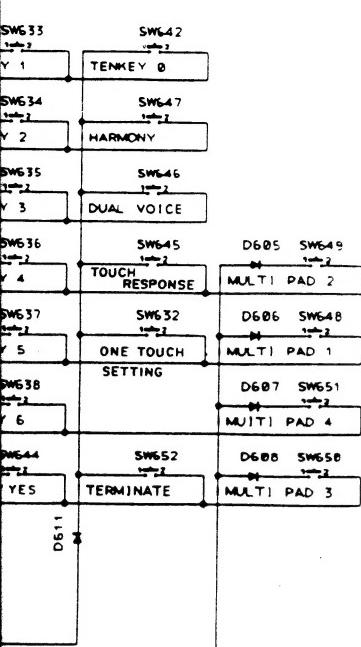
IC 901:	LA4705 (XMS93A00) POWER AMP 15W
IC 902:	PQ05RA1 (XL450A00) REGULATOR +5V
IC 903:	S-81250PG-T (XM993A00) REGULATOR +5V
2. Transistor	
TR 501,502,	2SC1815 Y,GR (IC1815M0)
801,802:	2SA(3CG)881Q (VQ175600) or DTB113ZS
TR 503-505:	2SA(3CG)881Q (VQ175600) or DTB113ZS
TR 506:	PSR-420 only
	When digital transistor, DTB113ZS is used as TR 503-TR505, jumper wire is installed to R567, R568, R569, R570, R571, R572, R573 and R574.
3. Transistor Array	
TA 501,502:	ULN2803A (V1707900): PSR-420 only
4. Diode	
D 101,401,	1SS133,1SS176 (VB941200)
402,801:	20E1-FC4 (VL723600)
D 802,901:	
5. Photo Coupler	
PC 801:	PC-900V (VG181900)
6. Mylar Capacitor	
C 421,422:	0.0560 50V J (UA654560)
C 425,426:	0.0220 50V J (UA654220)
C 915,918:	0.0470 50V J (UA654470)
7. Ceramic Capacitor	
C 411-414:	B 220P 50V K (FG612220)
C 423,424:	B 180P 50V K (FG612180)
C 801,803:	F 0.0100 50V Z (FG644100)
C 903,904:	B 1200P 50V K (FG613120)
C 905,906:	B 470P 50V K (FG612470)
C 909,910:	SL 47P 50V J (FG611470)
8. Ceramic Capacitor Array	
CA 101,501,	
502,504:	470P 50V M (VH285600)
CA 102,503:	470P X12 (VT487100)
9. Electrolytic Cap.	
C 102,105,112,	
302,402,404,	
926:	100.00 10.0V (UI528100)
C 403,907,908:	1.00 50.0V (UJ866100)
C 405,406,409,	
410:	10.00 16.0V (UI537100)
C 407,408:	4.70 50.0V (UI566470)
C 416,912,929:	100.00 10.0V (UJ828100)
C 419,420:	BP 10.00 16.0V (UN83710)
C 501:	1000 6.3V (UJ819100)
C 901,902:	10.00 16.0V (UJ837100)
C 911:	33.00 16.0V (UJ837330)
C 913,925,928:	100.00 25.0V (UJ848100)
C 919,920:	47.00 16.0V (UJ837470)
C 923:	4700 25.0V (UJ749470)
C 930:	470.00 16.0V (UJ838470)

Notes)	
Circuit Board:	MKS (VQ3
1. IC	: HD63B05V
2. Ceramic Capacitor	: SL 22P 5C F 47000P
4. Electrolytic Cap.	: 100.00 10
5. Carbon Resistor	: 4.7K 1/4 J 47.0K 1/4 J
6. Resistor Array	: RGLE12X2
7. Coil	: BL03RN2-P
8. Ceramic Resonator	: CST8.00MT 8.00M EFC
9. Connector	: 52147-6P T
10. Wire Trap	: 52147-11P 52147-12P

Notes)	
Circuit Board:	MK (VM894

1. Diode : IN4148TY-F





Notes)  
PSR-320

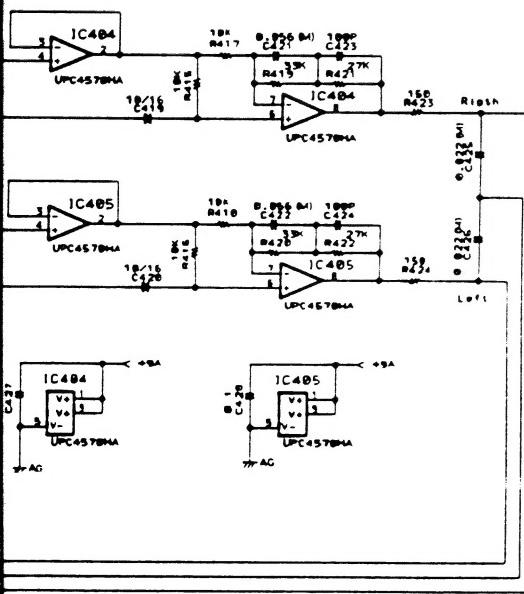
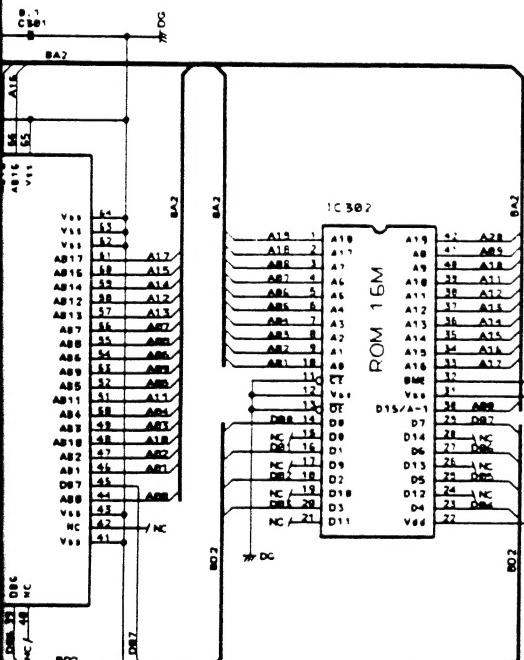
Circuit Board: M (NX007170) J (XQ410C0)  
M (NX007120) U,C,E (XQ41030)  
JACK (NX007180) J (XQ410C0)  
JACK (NX007130) U,C,E (XQ41030)  
HP (NX007190) J (XQ410C0)  
HP (NX007140) U,C,E (XQ41030)  
MVR (NX007200) J (XQ410C0)  
MVR (NX007150) U,C,E (XQ41030)  
PSW (NX007210) J (XQ410C0)  
PSW (NX007160) U,C,E (XQ41030)

## PSR-420

Circuit Board: M (NX007290) J (XQ410B0)  
M (NX007240) U,C,E (XQ41020)  
JACK (NX007300) J (XQ410B0)  
JACK (NX007250) U,C,E (XQ41020)  
HP (NX007310) J (XQ410B0)  
HP (NX007260) U,C,E (XQ41020)  
MVR (NX007320) J (XQ410B0)  
MVR (NX007270) U,C,E (XQ41020)  
PSW (NX007330) J (XQ410B0)  
PSW (NX007280) U,C,E (XQ41020)

## PSR-320 &amp; PSR-420

1. IC
  - IC 101: HD6413002FP16 (XQ375A00)  
CPU <H8/3002>
  - IC 102: IC-PST993C-T (XQ693A00) RESET
  - IC 103: TC74HC14AP (IR001400) S-INVERTER
  - IC 201: UPC27C80010 (XR007A00) :ROM 8M  
(PROGRAM): PSR-320
  - IC 201: UPC27C80010 (XR008A00) :ROM 8M  
(PROGRAM): PSR-420
  - IC 202: W24257-70LL (XQ696A00) SRAM 256K
  - IC 203: TC74AC32P (XG658A00) OR
  - IC 301: YMV258B-F (XQ200A00) GEW8S
  - IC 302: MX23C1610PC-12 (XQ697A00) MASKED ROM 16M
  - IC 401: PCM69AP-3 (XM051A00) DAC
  - IC 402: AN8005-(FTA)+5V (XP515A00)  
REGULATOR +5V
  - IC 403-405: UPC4570HA (XB247A00) OP AMP
  - IC 501-503: TC74HC174AP (IR017400) D-FF
  - IC 504: TC74HC04AP (IR000400) INVERTER
  - IC 901: LA4705 (XM593A00) POWER AMP 15W
  - IC 902: PQ05RA1 (XL450A00) REGULATOR +5V
  - IC 903: S-81250PG-T (XM993A00) REGULATOR +5V
2. Transistor
  - TR 501,502, 801,802: 2SC1815 Y,GR (IC1815M0)
  - TR 503-505: 2SA(3CG)881Q (VQ175600) or DTB113ZS
  - TR 506: 2SA(3CG)881Q (VQ175600) or DTB113ZS: PSR-420 only  
When digital transistor, DTB113ZS is used as TR 503-TR505, jumper wire is installed to R567, R568, R569, R570, R571, R572, R573 and R574.
3. Transistor Array
  - TA 501,502: ULN2803A (VI707900): PSR-420 only
4. Diode
  - D 101,401, 402,801: 1SS133,1SS176 (VB941200)
  - D 802,901: 20E1-FC4 (VL723600)
5. Photo Coupler
  - PC 801: PC-900V (VG181900)
6. Mylar Capacitor
  - C 421,422: 0.0560 50V J (UA654560)
  - C 425,426: 0.0220 50V J (UA654220)
  - C 915-918: 0.0470 50V J (UA654470)
7. Ceramic Capacitor
  - C 411-414: B 220P 50V K (FG612220)
  - C 423,424: B 180P 50V K (FG612180)
  - C 801,803: F 0.0100 50V Z (FG644100)
  - C 903,904: B 1200P 50V K (FG613120)
  - C 905,906: B 470P 50V K (FG612470)
  - C 909,910: SL 47P 50V J (FG611470)
8. Ceramic Capacitor Array
  - CA 101,501, 502,504: 470P 50V M (VH285600)
  - CA 102,503: 470P X12 (VT487100)
9. Electrolytic Cap.
  - C 102,105,112, 302,402,404, 926: 100.00 10.0V (UI528100)
  - C 403,907,908: 1.00 50.0V (UJ866100)
  - C 405,406,409, 410: 10.00 16.0V (UI537100)
  - C 407,408: 4.70 50.0V (UI566470)
  - C 416,912,929: 100.00 10.0V (UJ828100)
  - C 419,420: BP 10.00 16.0V (UN83710)
  - C 501: 1000 6.3V (UJ819100)
  - C 901,902: 10.00 16.0V (UJ837100)
  - C 911: 33.00 16.0V (UJ837330)
  - C 913,925,928: 100.00 25.0V (UJ848100)
  - C 919,920: 47.00 16.0V (UJ837470)
  - C 923: 4700 25.0V (UJ749470)
  - C 930: 470.00 16.0V (UJ838470)



## Notes)

Circuit Board: MKS (VQ305200) XM324A0

1. IC
  - : HD63B05V0D73P (XJ450A00) CPU
2. Ceramic Capacitor
  - : SL 22P 50V J (VD840500)
  - : F 47000P 16V Z (VK392400)
4. Electrolytic Cap.
  - : 100.00 10.0V (UJ828100)
5. Carbon Resistor
  - : 4.7K 1/4 J (HF756470)
  - : 47.0K 1/4 J (HF757470)
6. Resistor Array
  - : RGLE12X223J (VL674500)
7. Coil
  - : BL03RN2-R62T4 0.45 (VL409500)
8. Ceramic Resonator
  - : not installed
  - : installed
  - : installed: PSR-320 only

Speaker L

L01

R02